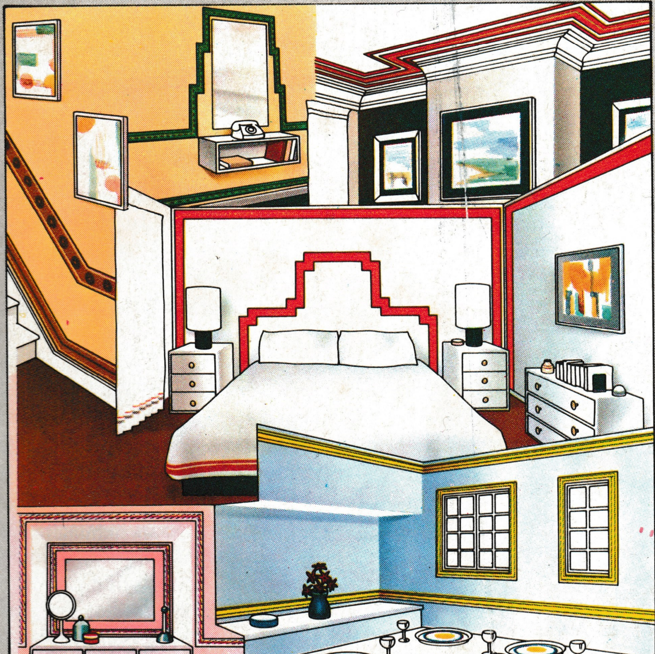
A Marshall Cavendish Publication in weekly parts

Part 3

THE KNACK

The complete manual of DIY skills, projects and home ideas

It's easy when you've got the Knack



UK 55p Australia $1.50 New Zealand $1.50 South Africa R1.25 Malta 50c Singapore $3.00

THE KNACK

Contents — Part 3

Home designer
Bathroom problems solved 65
Project: Space-saving storage
Give the dingy areas of your bathroom a facelift without spending a fortune

Carpentry course 2
Fixing wood to wood 72
Project: Build a bunk bed
All about nails and screws—how to use them and which to use where

Project
Simple sofa 78
A practical but eye-catching piece of furniture for the living room

Decorating course 2
Wallpaper without fuss 82
Project: Ideas for wallpaper borders
How to hang wallpaper the way the professionals do it.

Masonry course 2
On a firm footing 88
Project: An attractive stepped planter
All about building strip foundations for garden masonry projects

Editorial Staff

Editor
Richard Chapman
Art Editor
Maggi Howells
Deputy Editor
Martin Preston
Sub Editors
Tom Hibbert
John Ward
Lorraine Bacchus
Felicity Jackson
Designers
Lee Thomas
Shirin Patel
Christina Fraser
Technical Consultant
Roger Smith
Editorial Secretary
Sue Ashby

The index

The last two parts of The Knack will form a complete fully cross-referenced index. For easy access to the information in your growing collection, interim indexes will be published to cover each 14-part volume. For quick reference, reminders on what has been covered so far in the volume will appear on the inside back cover.

Published by Marshall Cavendish Partworks Ltd.

© Marshall Cavendish Ltd. 1980.

Printed in England by Varnicoat Ltd.

Copies by post

Our subscription department can supply your copies direct to you regularly and at 55p each. For example: the cost of 26 issues is £14.30 and for any other period simply multiply the number of issues required by 55p. These rates apply anywhere in the world. Orders with payment to Subscription Department, Marshall Cavendish Partworks Ltd., 58 Old Compton Street, London, W1V 5PA. Be sure to state from which issue you wish to start and leave the rest to us.

Back Numbers

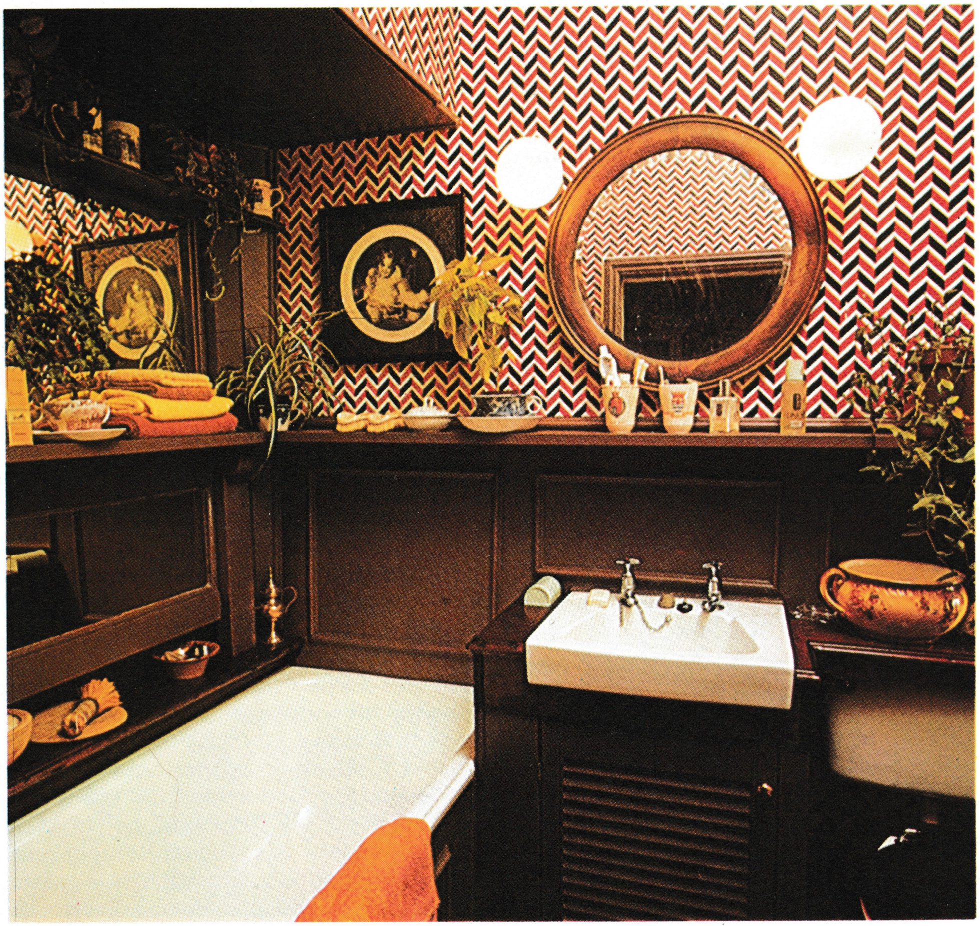
Copies of any weekly part of The Knack can be obtained from these addresses at the regular cover price. UK & Eire: The Knack Back Numbers, Dept. XX (M/C Ltd.), PO Box 80, Slough, SL3 8BN. Price 55p per part.
Australia & New Zealand: Back numbers are available through your local newsagent at $1.50 per part.
South Africa: The Knack Back Numbers, Central News Agency Ltd., Federal Packing Division, PO Box 613, Cape Town. Price R1.25 per part (please add sales tax).
Malta: Back numbers are available through your local newsagent at 50c each.

How to obtain your binders

Each binder holds 14 parts.
UK and countries not covered below: Send £2.70 plus 45p postage and packing (for each binder ordered) to—The Knack Binders, Dept 655 (M/C Ltd.), PO Box 80, Slough, SL3 8BN.
Eire: Send £2.70 plus 45p postage and packing (for each binder ordered) to—The Knack Binder Dept., Marshall Cavendish Partworks Ltd., 58 Old Compton Street, London, W1V 5PA.
Australia: Binders are available from your local newsagent or from Gordon & Gotch Ltd., PO Box 767 G. Melbourne.
New Zealand: Send $7.60 plus $1.40 tax for each binder to—The Knack Binders, Gordon & Gotch (NZ) Ltd., PO Box 1595, Wellington. South Africa: Binders are available at R5.50 (please add sales tax) from any branches of Central News Agency. If you have any difficulty in obtaining your binders please write to International Magazine Distributors (Pty) Ltd., Central News Agency Ltd., PO Box 613, Cape Town, enclosing a postal order for the cost of the binder plus sales tax and 50c postage for each binder. Malta: Your newsagent can supply binders at £M2.50 each.

Bathroom problems solved

Whatever the problem in your bathroom, there is bound to be a way round it. And quite often, it is the simplest solutions which bring about the most startling transformations



Elizabeth Whiting

Disguising old fittings

Moving into a new home often means that you have also inherited a modern bathroom suite in a pale colour which you do not like. But clever use of decoration and accessories can either underplay the colour of the suite by drawing attention away from it, or else make it seem a warmer shade.

If your bathroom has pale pink sanitaryware, give it a more sophisticated look by choosing a patterned wallpaper containing dusky pink as a predominant colour. Cover the floor with a washable brown carpet, running it up the sides of the bath.

If the wallpaper has a co-ordinating fabric, make blinds or curtains in this—or from a dusky pink or deep brown fabric. Brown accessories, such as bath rack, soap dish, toothbrush holder and a brown plastic-framed mirror will complete the look and tone down the harsh qualities of the sanitary fittings.

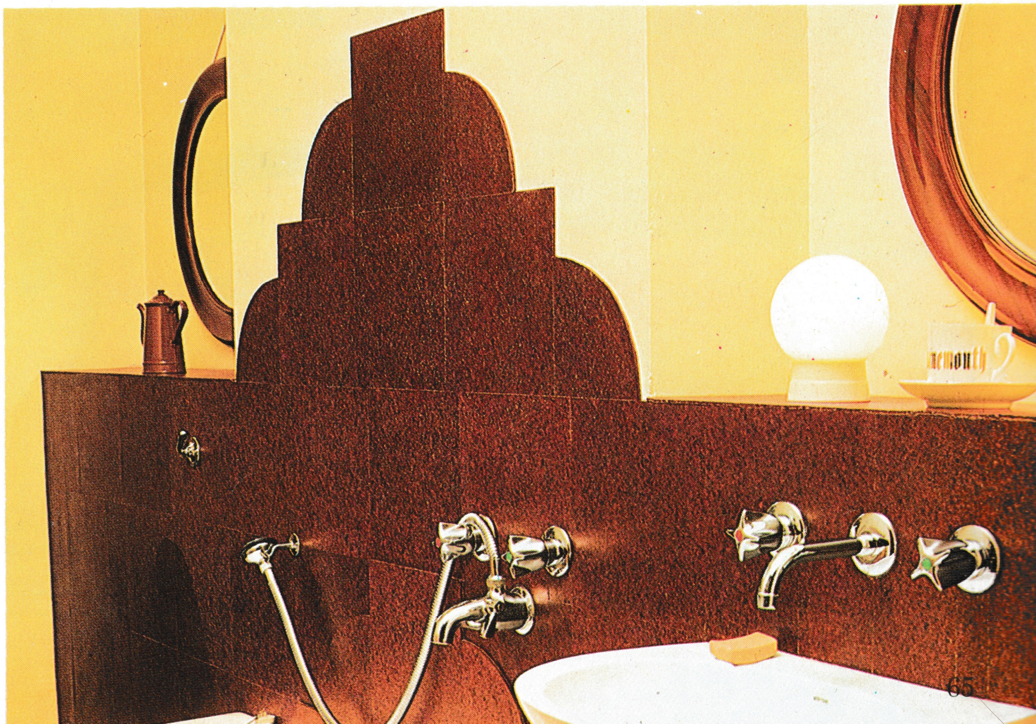
A white bathroom suite is enlivened by covering the walls with a patterned wallpaper which has a white background. Sealed cork flooring can then be laid and run up the sides of the bath to hide the back or side panels, adding warmth to the room.

The blind or curtains could be in a design which matches the wallpaper, or in an accent colour such as bright green. With white sanitaryware, the accessories and towels will predominate: these could all be in one strong colour such as burgundy or green.

If the sanitaryware is in a pale lemon, depth can be added to the colour by tiling the splashbacks with mustard-coloured tiles and choosing a wallpaper which has the same mustard shade in its pattern. Cork tiles or fawn carpeting could be used to cover the floor and sides of the bath. Brown curtains or blinds combined with pine accessories such as towel rail, shelf and bath rack will

Left: *An old-fashioned bathroom suite which has been boxed-in and decorated in such a way that the eye is immediately distracted upwards*

Below: *An unusual tap arrangement, plus ingenious use of sealed cork tiles as a wall covering and splashback bring a traditional white suite to life*

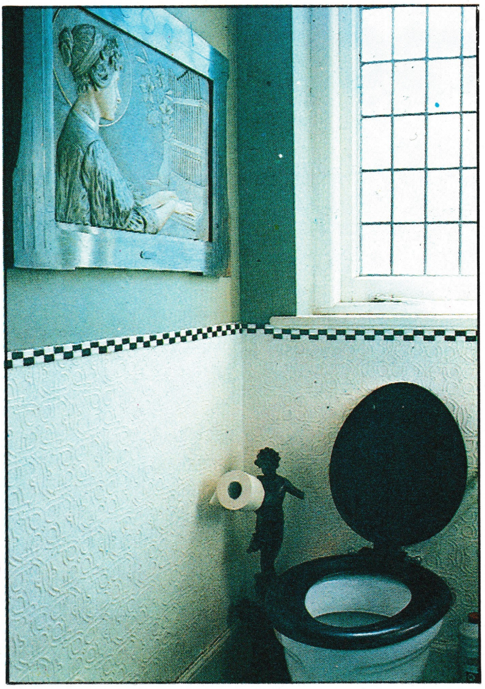


make the suite seem bolder.

A sky blue bathroom suite can be made to seem deeper and more dramatic by covering the walls in either deep blue tiles or a deep blue patterned wallpaper. Flooring could be in a shade such as beige—carried up the sides of the bath—and matched to deep blue plastic accessories, beige towels and deep blue bath set.

Accessories

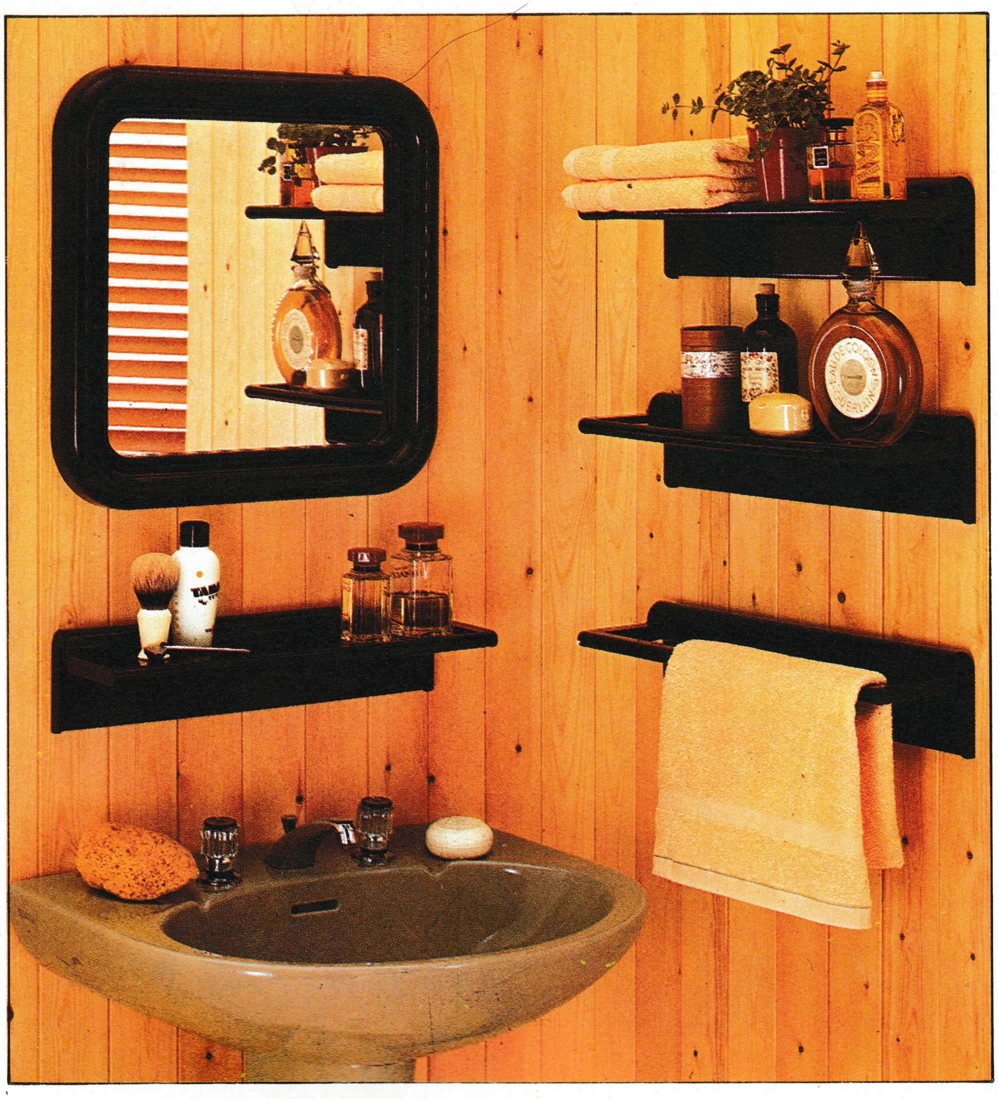
Although renewing the decorations is the most obvious way of changing the face of a bathroom, equipping it with new accessories can be just as effective and certainly requires less effort. The accessories can be used to colour co-ordinate with the sanitaryware giving your bathroom a certain 'look'—bold and vibrant; streamlined and efficient; contemporary; or even a look which is predominantly female. It may have to be a family decision.



Bill McLaughlin

Above: *A standard toilet made far from ordinary. The walls and window are plain but the paper-holder and painting add a touch of class*

Below: *Colour-matched accessories give a small bathroom an uncluttered appearance, especially if the towels are chosen to harmonize*



Crayonne

A huge range of fitments—in metal, ceramic and plastic—is available from department stores, chain stores and specialist bathroom shops. You can buy not only a whole range of accessories in one colour and style, but colour matched towels and bath mats as well. In a large bathroom there is scope for mixing the colour of accessories but in a small one, matching accessories are easier on the eye.

If sanitaryware has passed its prime in terms of appearance but still functions perfectly, you can improve things by using clever disguise tactics.

The bath: Boxing-in an unattractive bath can drastically improve its appearance. Hardboard can be fitted around the bath underneath the lip and then decorated with paint or wallpaper—sealed with polyurethane varnish to protect it from splashes. Alternatively, floor coverings such as sealed cork, vinyl or carpeting can be continued from the floor right up the sides of the bath.

Rather than trying to disguise an old bath which has cast-iron legs or ball and claw feet, you can make it a feature of the bathroom by painting the outside in a bold colour or stencilling on an eye-catching design. The addition of new taps can give the bath an updated, or cared-for look.

If the inside of a cast-iron bath is in a bad condition it can be painted with an enamel bath paint—although this is not always very successful. It is better just to clean the bath with an extra-strong cleaning agent.

Where the bathroom has old sanitaryware it is sensible to choose 'classic' style decoration which will blend sympathetically with the suite. Carefully chosen, a marbled or embossed paper will add an unmistakable 'vintage' character to a bathroom—useful if you are trying to make the most of old wall tiles.

The basin: An unsightly wash basin can be largely hidden by building a vanitory unit around it. This will not only smarten up the basin—hiding the plumbing underneath—but also provide storage space for toilet requisites. Again, new taps can be added for an improved appearance, as can a new plug and chain.

The wc: An old high-level cistern can be disguised by building a cupboard around it, with a hole drilled in the base for the chain and handle. A new chain and handle will help and the wc seat can easily be replaced by bolting on a new one. The addition of a new seat cover and pedestal mat always give the wc a fresh lease of life.

Lack of space

Where space in a bathroom is limited, the illusion of extra space can be created by careful choice of decor. There are three principal ways to visually enlarge a room—by using colour, by carefully arranging the wall decoration or by using mirrors.

Pale colours cause the walls to 'recede', making the overall space appear correspondingly larger, while bright dominant shades tend to bring the walls closer together.

The same is true when choosing patterned wallpaper or tiles for the walls of a small bathroom—a small pattern in a muted colour makes the room seem larger while a bold pattern in a bright colour overwhelms small rooms and creates an oppressive, claustrophobic effect.

Hanging wallpaper horizontally is yet another way of creating an illusion of extra space, linear-patterned wallpapers being the most effective. This technique can also be employed to seemingly alter the shape of the room, using horizontal wallpaper on just one or two walls.

Mirrors give a more solid illusion of enlarged space. As an added bonus, they make a dark room seem lighter by reflecting whatever space is available around the room. On an end wall, a large mirror makes the bathroom seem twice as long: a large mirror on a side wall makes the room look twice as wide. In a steamy bathroom use an acrylic mirror which has been specially coated to resist misting.

Mirror tiles, either tinted or plain, are another sensible choice for the bathroom. Easy to fix to the wall—they have adhesive pads at the back of them—they are easier to handle than a large sheet mirror. And because the joints break up reflected images, they can be used more extensively without fear of having your reflection follow you around. Like all mirrors, mirror tiles should be fitted so that air can flow behind them—damp tends to ruin mirror finishes.

Below: *Even dark colours can make a small bathroom seem spacious. Dramatic use of bright fittings and the clean lines of the tiles add a sense of space*

Bill McLaughlin

Ugly pipework

Old bathrooms often contain a great deal of ugly pipework in need of disguising. This can either be done by boxing in the exposed pipes, or by fitting wood panelling over them.

As wood panelling can be secured to almost anything—including old ceramic tiles and chipped walls—it is an effective way of disguising pipework as well as being an attractive form of decoration. The panelling can be applied vertically, horizontally or diagonally for an interesting effect with the timber stained in various shades of the same colour.

An alternative way to approach the problem of exposed pipes is to actually make them a feature of the room by picking the pipework out in bright, strong colours.

Susan Griggs

Above: *When ugly pipework is given a vivid treatment, it is transformed into the main feature*

The Picture Library

Above: *A quick way to liven up a bath and hide its plumbing—matching shutters complete the look*

Elizabeth Whiting

Above: *If you have nowhere to put things; flaunt them as brazenly as the bathroom permits*

Storage problems

In a small bathroom every bit of spare space may need to be untilized for storing things.

Open shelves: Open shelving—made from materials such as sealed or painted solid timber or melamine-faced chipboard—can be used satisfactorily to store many items. Glass needs to be kept spotlessly clean to look its best.

Narrow shelves can be fitted in many places in a bathroom, such as along the wall side of the bath; above the bath taps; above the wc cistern; and even between the wc bowl and cistern. Take care when storing breakable items such as glass bottles and jars on shelves above the wash basin as they could chip or shatter the enamel if they fell.

Bath: Where the bath rim is wide enough, it makes a convenient place to store toiletries and manicure implements. Another way of utilizing bath space as storage is to box round the bath as shown on pages 70-71.

Basin: Building a vanitory unit around a basin provides a logical place to store toiletries with the added advantage that plumbing and waste pipes are hidden. Drawbacks are that water tends to lie on the surface of the unit in puddles while the edge detail between basin and surface often becomes grimy.

Medicine cabinets: Mirror-fronted cabinets are sold in a variety of materials, including pine, enamelled steel and coloured plastic and many are included in co-ordinated accessory ranges. Some cabinets have fluorescent lighting above the mirror, shaving sockets, drawers and shelves, and items such as toothbrush racks fitted inside them. They can be used to store toiletries as well as medicines.

If there are children in the household, the cabinet will either have to be lockable or else designed to make it impossible for a child to open. Do not position a medicine cabinet anywhere prone to condensation.

Cold and damp

A bathroom which has a cold floor—both to the touch and appearance—not only makes the room look clinical, but also shocks the senses when early morning bare feet come into contact with it. A floorcovering which is soft to the touch and easy on the eye will make the bathroom a more comfortable place and create a feeling of cosiness and warmth.

The idea of carpeting a bathroom is often dismissed as being impractical, both because of the expense and because of the amount of water likely to be splashed around. However, synthetic fibre carpeting—in materials such as acrylic and nylon—is sold by a number of manufacturers. This has a synthetic or rubber backing which does not absorb water—and consequently does not rot. For a luxurious look, the carpeting can be extended up the sides of the bath.

Vinyl floorings—sold in both sheet and tile form—are relatively soft underfoot and come in a wide variety of patterns and colours. They, too, can be extended up the sides of the bath to hide the back and side panels. The greatest advantage of vinyl flooring is that it is easily cleaned and does not require polishing.

Sealed cork tiles add a warm touch to a cold-looking bathroom and like other tiles, can be taken up onto the walls and surfaces around baths and wash hand-basins.

Where a bathroom has a solid flooring such as ceramic tiles, it can be 'softened' by the addition of a cotton, tumble-twist rug. These are available in a variety of shades to colour co-ordinate with your bathroom decor and can be taken up and machine washed.

Condensation is often the biggest single problem in a bathroom, especially where gloss paint and ceramic tiles have been used on the walls. An extractor fan copes effectively with this by carrying the water-laden air away before it condenses. It has the added advantage of keeping the room fresh, dispensing with the need to keep the window open. But because it carries out a lot of warm air, an extractor fan is not suited to a bathroom which is already cold.

Condensation can also be minimized by keeping the bathroom warm and if you have not got central heating, a wall fire or heated towel rail combined with warm furnishings should help. Wall fires must be operated by a pull switch and should be fitted high enough to comply with the regulations in your locality.

The limitations set by your heating and ventilation should be considered when you are choosing decorations. An attractive stone floor will be unbearably cold without underfloor heating. Likewise, metallic-papered walls will create endless condensation problems without proper ventilation.

Below: *Coldness has been banished from this bathroom by using warm colours*

Bill McLaughlin

Problems with tiles

Where bathroom walls have been tiled, they may be chipped and cracked. Or, if they have been used only for splash surfaces and window ledges, they may leave random shapes.

If you decide to replace the tiles you must remove the old ones and make good the wall underneath. However, removing old tiles often involves more work than is anticipated and you may prefer just to replace individual damaged tiles.

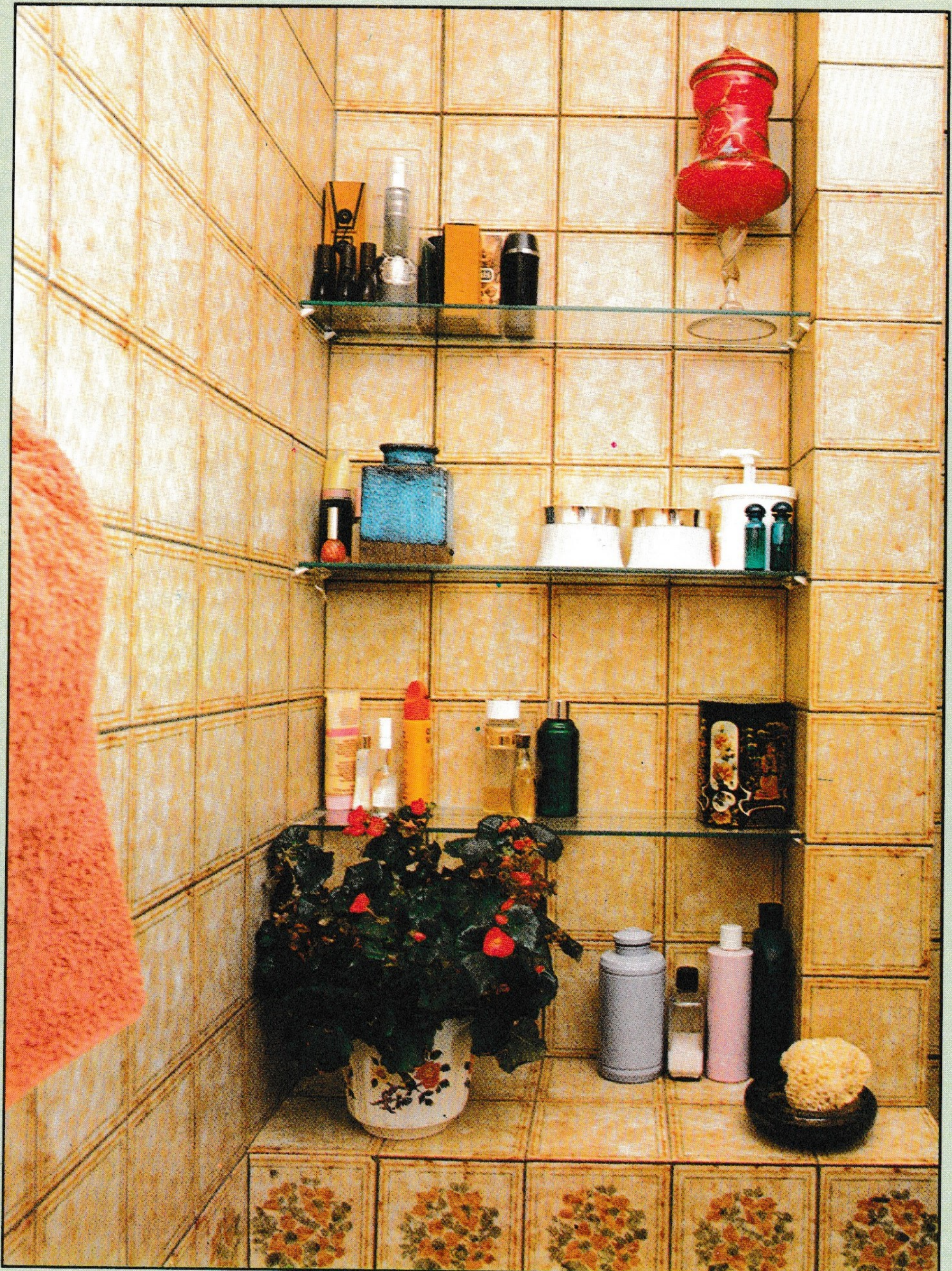
An economical way of disguising tiles which are basically sound but look dingy is to paint them with two or three coats of vinyl gloss in a shade to match the decor.

Alternatively, you could stencil patterns on individual tiles at regular intervals. Stick-on plastic tile covers, in a variety of patterns, easily and effectively hide less-than-perfect tiles.

Right: *Lift dull, white tiles from their clinical level with bold use of poster colours and a dramatic arrangement of coloured tiles*

Elizabeth Whiting

Space-saving storage



Gavin Cochrane

One of the most irritating features of a small bathroom is the lack of storage space. In this design, every bit of space is put to good use. The area surrounding the bath has been boxed off with sliding doors and can be used for storing such unsightly items as floor cloths and other cleaning materials.

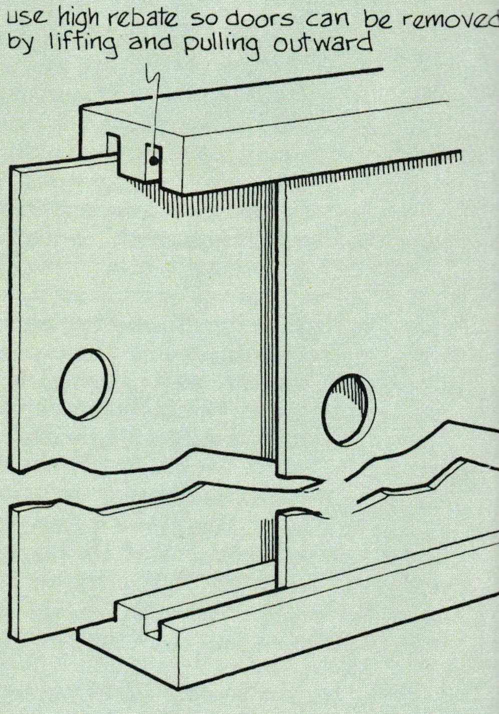
An inset section in the wall has been created by constructing a simple framework of softwood battens, then screwing chipboard sheets over the top. This makes an ideal surface on which to lay ceramic tiles.

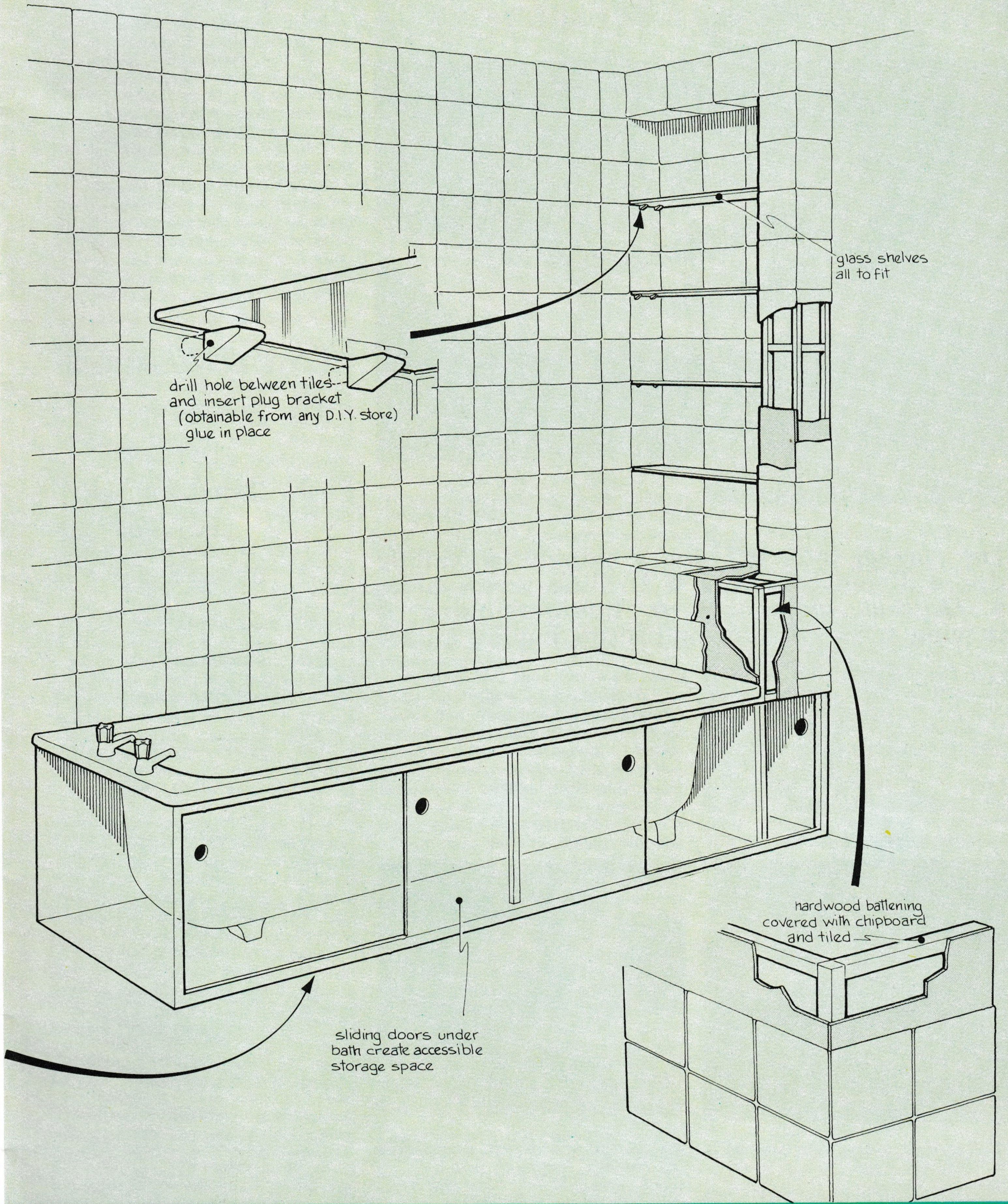
The glass shelves set into the tiled alcove can display some of the more attractive bathroom accessories: bottles of perfume, boxes of soap, storage jars full of crystals or plants. Alternatively, they make ideal storage space for all the clutter which tends to accumulate round the edges of the bath and wash hand-basin.

A great advantage of the design is that it can be easily adapted to suit your own personal needs—all you need to do is choose tiles and paint which match the existing decor.

On the other hand, you could use the design as the basis for giving your bathroom a completely new look—perhaps with a raised-up bath.

Above and left: *The completed project in soft, neutral colours which blend beautifully with the bath and which allow any number of colours of accessories to be displayed. Note how neatly the sliding door arrangement has been extended underneath the tiles. The space created here can be used for dirty washing or other bathroom effects such as spare toilet paper or washing powder.*


use high rebate so doors can be removed
by lifting and pulling outward



glass shelves all to fit

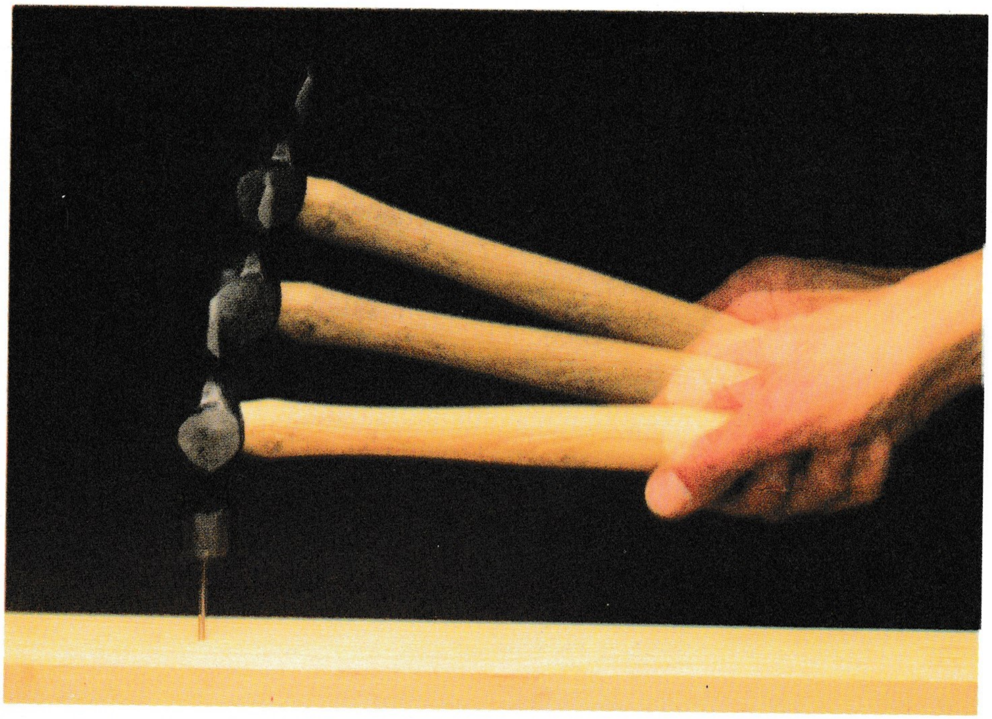
drill hole belween tiles and insert plug bracket (obtainable from any D.I.Y. store) glue in place

hardwood battening covered with chipboard and tiled

sliding doors under bath create accessible storage space

Advertising Arts

Fixing wood to wood



The correct tools ● Using a hammer ● Nailing tips ● Removing nails ● Drilling screw holes ● Drilling techniques ● Countersinking ● Driving screws ● Nail and screw buying guides

Nails and screws are the two most important fastening devices used in carpentry, but how well they do their job depends almost entirely on how correctly they are used.

Tools

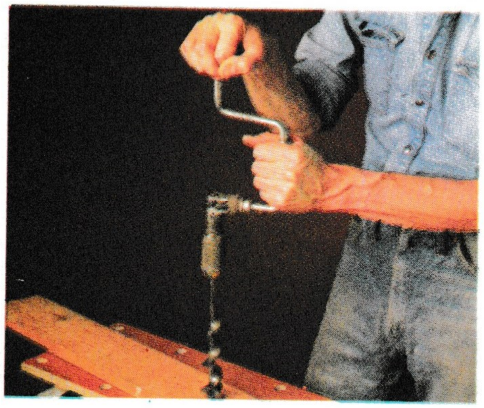
For simple nailing work, only a hammer is essential. The two used most frequently in carpentry are the claw hammer and the cross-pein, or 'Warrington'. The first is useful for levering out old nails and lifting floorboards while the second is more suited to finer nailing work.

If you are starting a tool kit, opt for a 450g claw hammer and a 280g Warrington. Later, you can add a 100g 'pin' Warrington for light, accurate nailing and pinning.

For burying nails below the surface of the wood, you need a set of nail punches. These come in various sizes—to suit different sizes of nail—and help to avoid bruising the wood with the hammer head.

Some kind of drill is essential for screwing work. A power drill is the obvious choice because of its versatility but where there are no power points or access is limited, a wheel brace (fig 9) may prove invaluable.

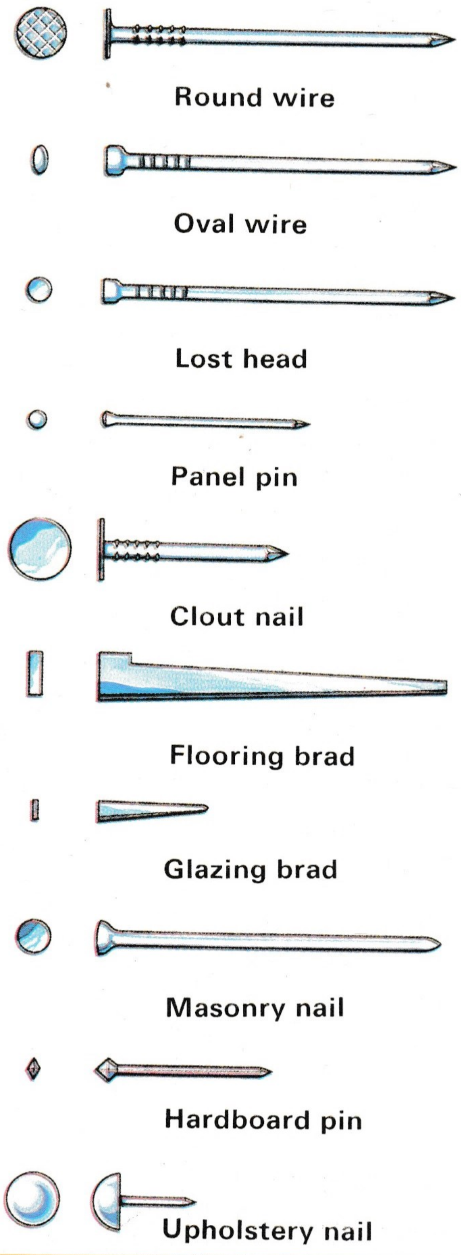
Together with a set of woodworking



1 *If you are drilling large holes by hand, use a swing brace. When the point emerges, turn the wood over and drill from the other side*

2 *Start short nails with a cross-pein hammer. Tap gently with the wedge end until they stand firm then drive in with the hammer face*

Commonly used nails



twist drills, these two tools should take care of most small and medium sized screwing jobs. To drill larger holes by hand, you need a swing brace (fig 1) and a set of special bits—not a priority for the beginner's basic tool kit.

For screw holes into softwood below No. 6 gauge (3.5mm) and for rough work, a bradawl can be used instead of the drill and bit.

Good quality screwdrivers are essential to any tool kit and cabinet screwdrivers, with blades of about 300mm, are the most useful. Two of them—one with an 8mm tip and one with a 6.5mm tip—should cover you for most jobs. To deal with crosshead, Philips or Posidriv screws, you need screwdrivers with the appropriate tips.

Ratchet and pump-action screwdrivers are also available. But although they often save time and effort, they are by no means essential.

Using a hammer

Using a hammer properly requires a little bit of practice. Take a firm grip at the end of the handle and form your arm into a right-angle, looking straight down on the work as you do so. Start the nail by tapping it lightly, keeping your wrist controlled but flexible and letting the hammer head do the work. Increase the power of your stroke slightly as the nail goes in but at no time let your arm waver—if you do, you will either miss, or bend, the nail.

On well-finished work, remember not to drive nails right in—leave a bit protruding for the hammer and nail punch to finish off.

Start light nails or tacks with the cross-pein by tapping gently with the wedge end of the hammer head. Drive them home with the hammer face using a number of fairly gentle taps rather than trying to knock them in with one blow, which will probably bend the nail. Very short nails can be held with a pair of thin-nosed pliers until they stand on their own.

Hammer faces should be kept clean, smooth and free from grease: a slippery or damaged hammer causes accidents. If possible, polish your hammer heads on a piece of medium emery cloth before use.

Nailing techniques

For accurate, well-finished work, nails alone do not normally make a strong joint. However, if the nails are angled in opposition to each other, a reasonable joint can be made. When used in conjunction with one of the modern, woodworking adhesives, a very strong joint can be achieved. The panel on page 74 shows some common nailing techniques. Seldom are nails driven straight—a stronger joint can be made if they go in at an angle or *skew*.

When nailing two pieces of wood together, nail the smaller to the

For rough carpentry work: large ugly head ensures a firm grip. Liable to split wood

Commonly used in carpentry. Oval cross section makes it unlikely to split wood if the long axis follows the grain

General carpentry nail. Head can be punched below surface and the hole filled

Small nail for securing light pieces of wood; usually used in conjunction with glue

Large headed for fixing roofing felt, sash cords, wire fencing to wood. Galvanized for outdoor work

Used to hold down floorboards. Good holding power and unlikely to split wood

Headless: used to hold glass to picture frames and lino to floorboards. Will not grip if driven too far in

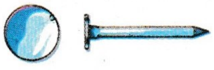
Hardened steel nail for fixing wood to soft brick, breeze block and concrete

Special head shape countersinks itself in hardboard and can be filled over

Decorative head used to cover tacks in upholstery work

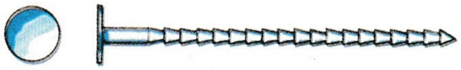
Venner Artists

Special-purpose nails



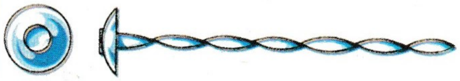
Carpet nail

Small nail with broad head. For fixing carpets and fabrics to wood or floorboards



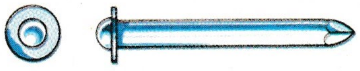
Annular nail

For fixing plywood and other sheet materials. Very strong grip but difficult to remove



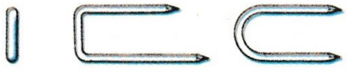
Roofing nail

For securing corrugated iron or asbestos roofing to wooden rafters. Galvanized for outside work



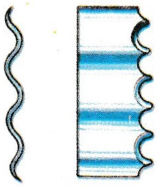
Pipe nail

Used to fix guttering and other rain-water hardware directly onto masonry or brick



Wire staple

Used to secure wire fencing, upholstery springs and similar hardware to wood. Galvanized for outside work

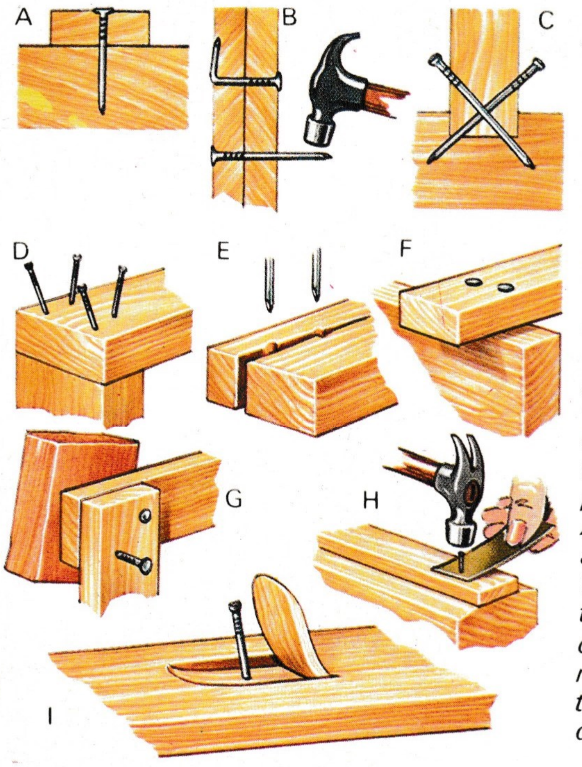


Wood cleat

For butt-joining wood quickly and easily. Not very strong

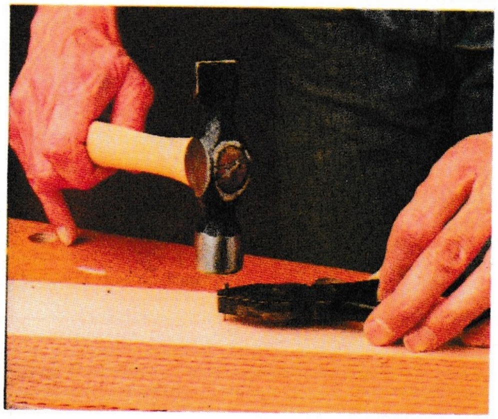
Venner Artists

Nailing tips

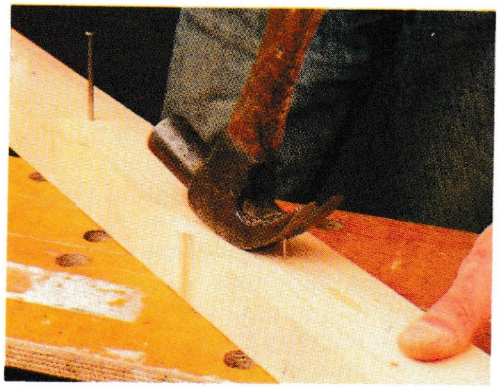


A. *Use nails about 3 times as long as the workpiece. Always nail smaller to larger.* **B**. *On rough work, clench-nailed joints are much stronger.* **C**. *Skew-nailing is one of the best ways of securing a housing joint.* **D**. *When nailing into end-grain, drive in nails at opposing angles.* **E**. *Driving more than one nail along the same grain line risks splitting the wood.* **F**. *Nail small battens overlength to avoid splitting the end. Afterwards, saw or plane off the excess.* **G**. *Avoid 'bouncing' by placing a block under the workpiece.* **H**. *Small nails can be positioned with the aid of a cardboard holder.* **J**. *Secret nailing. Prise up a sliver of timber with a chisel. Glue down after nailing*

Trevor Lawrence



3 *Very small nails and pins should be held with a pair of pliers. Use the cross-pein hammer to hit the nail with fairly gentle taps*



4 *Use the claw hammer to remove any partially driven nails. Slide the claw under the nail head then give it several short, sharp pulls*

larger. Avoid nailing into hardwoods altogether: if you must, drill a pilot hole first, slightly smaller than the shank of the nail.

Removing nails

The claw hammer is used to remove partially driven nails. To avoid damaging the surface of the wood, place a small offcut under the hammer head before you start levering (fig 5). Extract nails with a number of pulls rather than trying to do the job in one.

Use pincers to remove small nails and pins which are difficult to grip with the claw hammer—a nail without a head, for example.

If a nail is impossible to remove, punch it below the surface of the wood and use filler to cover the hole, or carefully chip away some of the wood around the head until you can get a grip on the nail head with a pair of pincers.

Drilling screw holes

All screws must have pilot holes made before they can be driven home. For screws into softwood smaller than No. 6 gauge (3.5mm), make these with a bradawl. Drive into the wood with its chisel point across the grain, to avoid splitting.

Screws into hardwood and screws into softwood larger than No. 6 gauge need two pilot holes. One for the thread—the pilot hole—and one for the shank—the shank hole. These must be made with a drill and bit.

For all except the largest pilot holes, use twist drill bits. Those for pilot holes should be the same size as the screw core to which the threads are attached. Those for the shanks should match the screw shanks exactly. If you buy a set of twist drills, these will cover you for all screw sizes in common use.

When drilling pilot holes, mark the required depth on the drill bit with a piece of masking tape. This will tell you when to stop and cannot damage the workpiece should you overdrill.

As with nailing, where two pieces of wood are to be fixed together, screw the smaller to the larger. Drill the shank hole right through the smaller piece so it is pulled down tight as the screw is driven home. If the shank hole goes only part of the way through you will find it very hard to pull the top piece of wood down tight and may risk breaking or damaging the screw. Brute force should never be used—it indicates that either the thread hole or the shank hole is too small.

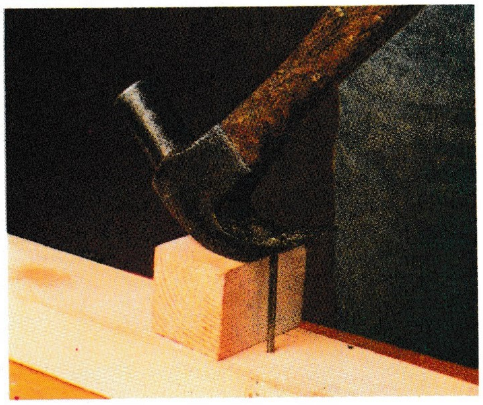
Countersinking

Countersinking is normally the easiest way of recessing screw heads flush with, or below the surface of the wood. The recess is made with a countersink bit (fig 7) after the pilot has been drilled, to the same depth as the countersunk screw head. Take particular care if you are countersinking with a power drill or the recess may accidentally become too large.

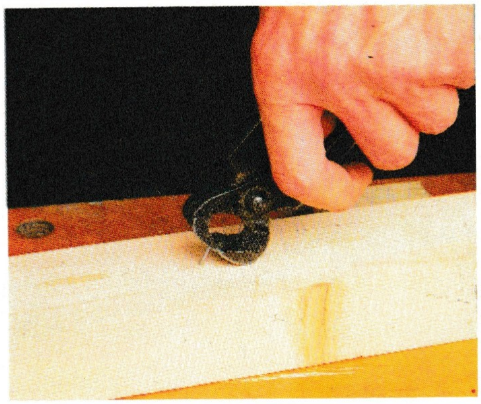
For some screw sizes, special bits are available to drill the thread hole, shank hole and countersink recess in one operation. Care should be taken, however, as they break easily.

Drilling techniques

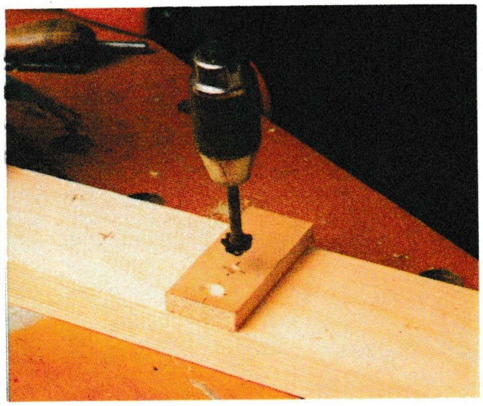
Using the correct drilling technique makes all the difference to the quality of the finished work. Whether your drill is power or hand operated, you should always hold it at right angles to the work surface so that the pilot hole is straight. If you find this difficult, rest a try square upright next to the bit and use it as a guide.



5 *To remove large nails and to avoid damaging the wood, slip a block of wood under the head of the nail. This increases the leverage*

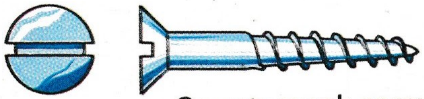


6 *Use pincers to remove nails which are difficult to grip with a claw hammer. A series of sharp pulls avoids leaving a large hole*



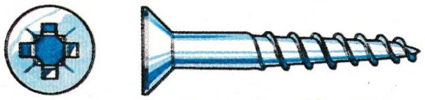
7 *For flat-head countersunk screws, use a countersink bit. Drill a hole of the same diameter as that of the screw head*

Screws: types and uses



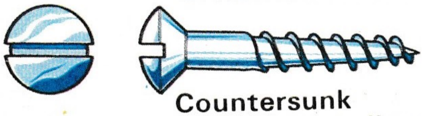
Countersunk screw

Used for general woodwork. The head sinks in flush with or slightly below the wood surface



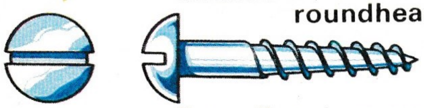
Crosshead screw

Used for general woodwork, but needs a special screwdriver which does not slip from the head



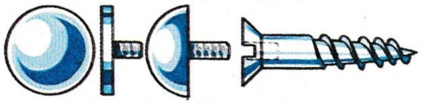
Countersunk roundhead

Used for fixing door-handle plates and other decorative fittings with countersunk holes. The head is designed to be seen



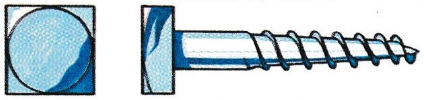
Roundhead screw

Used for fixing hardware fittings without countersunk holes. The head protrudes from the work



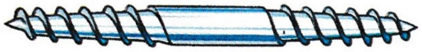
Mirror screw

Used for fixing mirrors and bathroom fittings. The chromed cap threads into the screw head to hide the screw. Do not overtighten



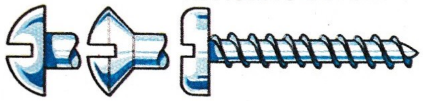
Nuthead screw

Used for fixing heavy constructions together and heavy equipment to timbers. Tighten with a spanner



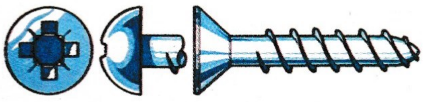
Invisible screw

Used for invisible joining of two pieces of timber.



Panel screw

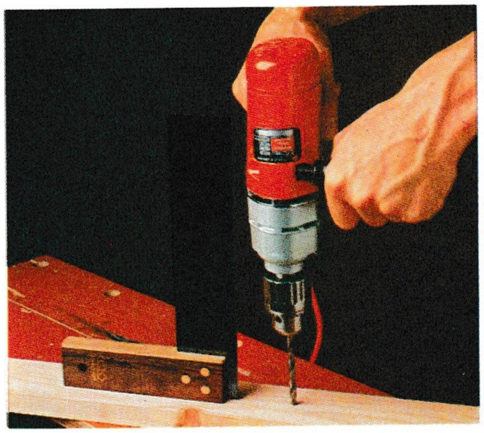
Used for fixing thin sheets of metal and plastic. Cuts its own thread as it is screwed in. Various types of head are available



Chipboard screw

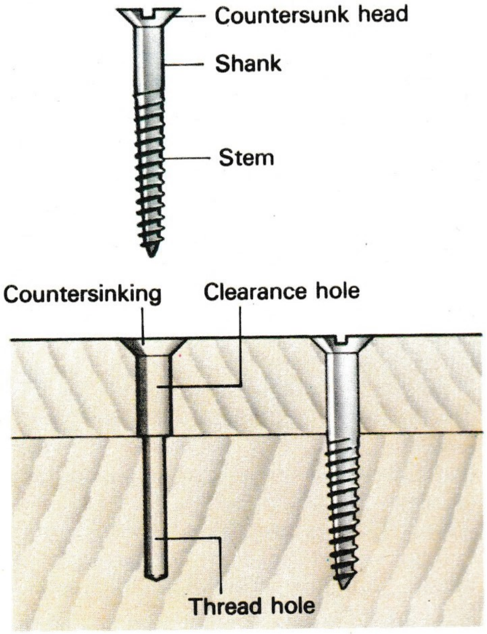
Used for securing chipboard and its derivatives

Venner Artists

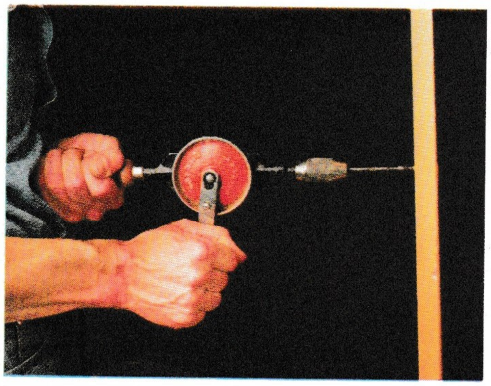


8 *Always hold a drill at right-angles to the surface so that you drill a straight hole. Rest a try square next to the bit and use it as a guide*

A. *Think of screws as being in sections and drill the pilot holes accordingly*



Venner Artists



9 When you are drilling horizontally with a hand-operated wheel brace, grip the handle with your thumb towards the wheel

Always use a power drill with the cable over your shoulder, where it cannot accidentally become damaged or interfere with the work.

With bit drills, operate the drill in bursts and lift it frequently to allow debris to escape. To give yourself as much control as possible, always hold the drill with both hands and never press too hard—you are bound to overdrill.

Keep the chuck key taped to the cable, so it is handy whenever you want to change bits.

Using a hand-operated wheel brace requires slightly more effort, but gives more control than a power drill. When drilling vertically, grip the handle with your thumb on top. Turn the wheel steadily to avoid knocking the drill out of line.

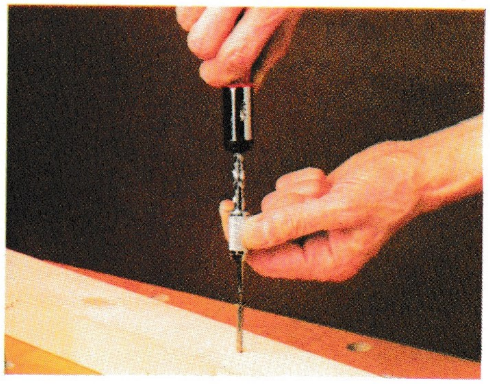
To drill horizontally, grip the handle with your thumb towards the wheel (fig 9). Alternatively, where a side handle is fitted, grasp this in one hand while you turn the wheel steadily with the other.

Avoid applying excessive body pressure to the wheel brace at all times or you will snap the bits.

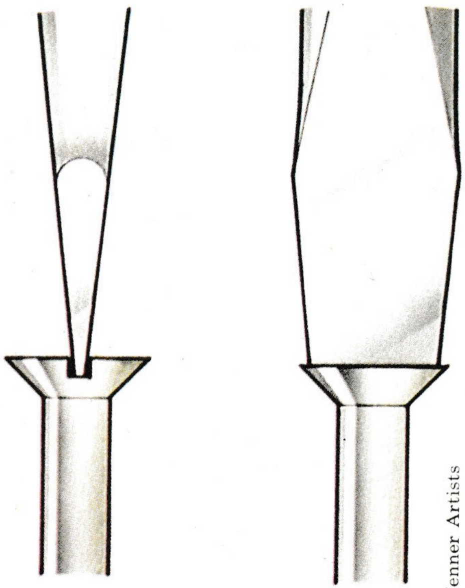
Driving screws

Always make sure that the tip of your screwdriver is in good condition and that it fits exactly into the slot in the screw head. A blade which is too narrow or rounded damages the slot, while too wide a blade damages the wood as the screw goes in.

As a time-saving alternative to the conventional screwdriver, a pump-action screwdriver works by converting downward movement of the sliding handle into rotation of the tip. So, simply by pushing hard, the screw is driven very quickly in or out of the wood (depending on the setting of the ratchet).



10 A pump action screwdriver should be held with both hands. Make sure the screwdriver is squarely on the screw head

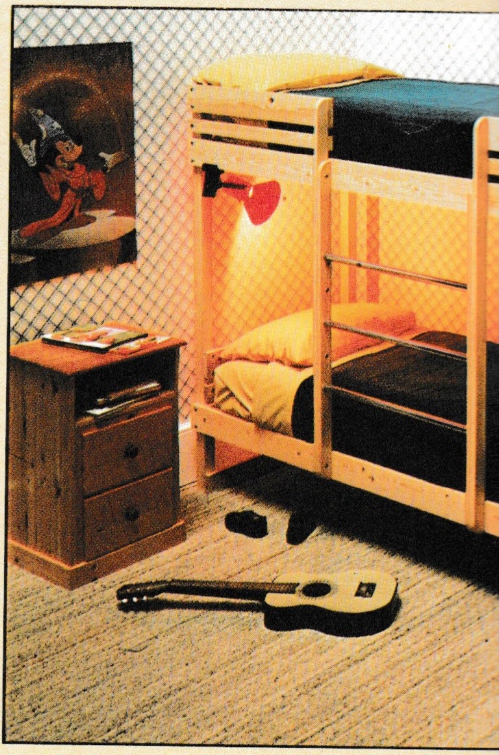


Venner Artists

B. *Always ensure that the blade of your screwdriver fits the screw head exactly and that the tip is kept ground square. If you do not, you will risk damaging the workpiece or chewing up the screw slot*

When using a pump-action screwdriver, hold it firmly in both hands—one on the handle, the other on the knurled collar just above the bit—and make sure that you are not off-balance (fig 10). A sudden loss of control causes the blade to slip out of its screw slot—damaging your wood in the process.

To make screwdriving easier, the screws can be lubricated with wax or candle grease before driving. Brass screws are quite soft and to prevent damage when screwing into hardwood, the resistance can be lowered by driving in a harder steel screw of the same size first.



Nigel MacIntyre / Wallpaper courtesy of Sanderson Ltd.

Build a bunk bed

Cutting list

The list quotes finished lengths of timber. Add on at least 15mm to each length to allow for accurate cuts 'on the waste side of the line'.

Legs: 4 No. 50mm x 50mm x 1480mm

Side rails: 4 No. 100mm x 25mm x 2065mm; 2 No. 100mm x 25mm x 726mm; 2 No. 50mm x 25mm x 726mm

End rails: 8 No. 100mm x 25mm x 760mm; 4 No. 50mm x 25mm x 760mm; 2 No. 75mm x 25mm x 760mm

Base support rails: 4 No. 50mm x 25mm x 716mm; 4 No. 50mm x 25mm x 1921mm

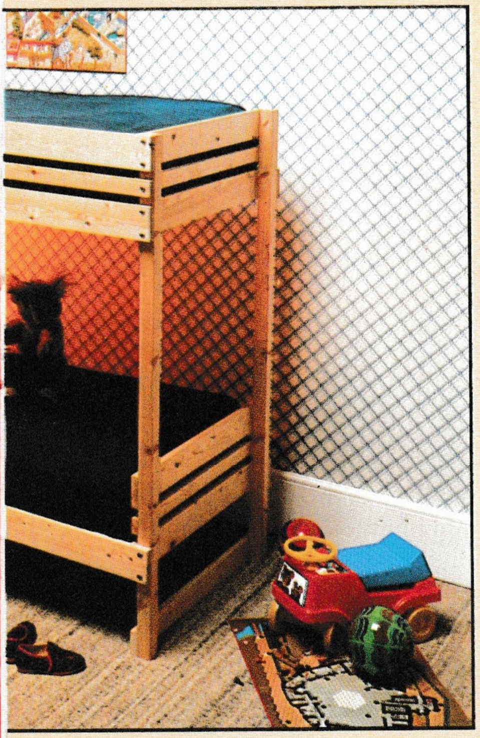
Outer ladder stiles: 2 No. 50mm x 25mm x 1250mm

Inner ladder stiles: 2 No. 50mm x 22mm x 1950mm

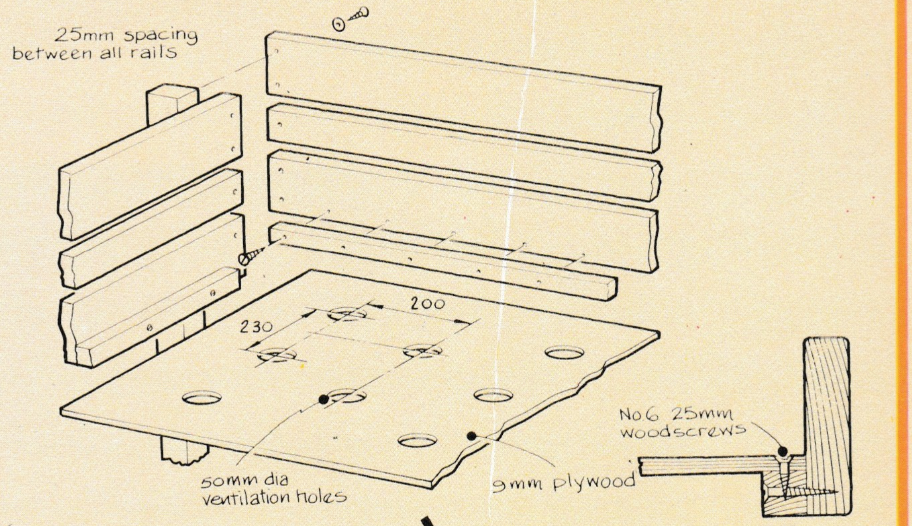
Plywood leaves: 2 No. 760mm x 1921mm x 9mm

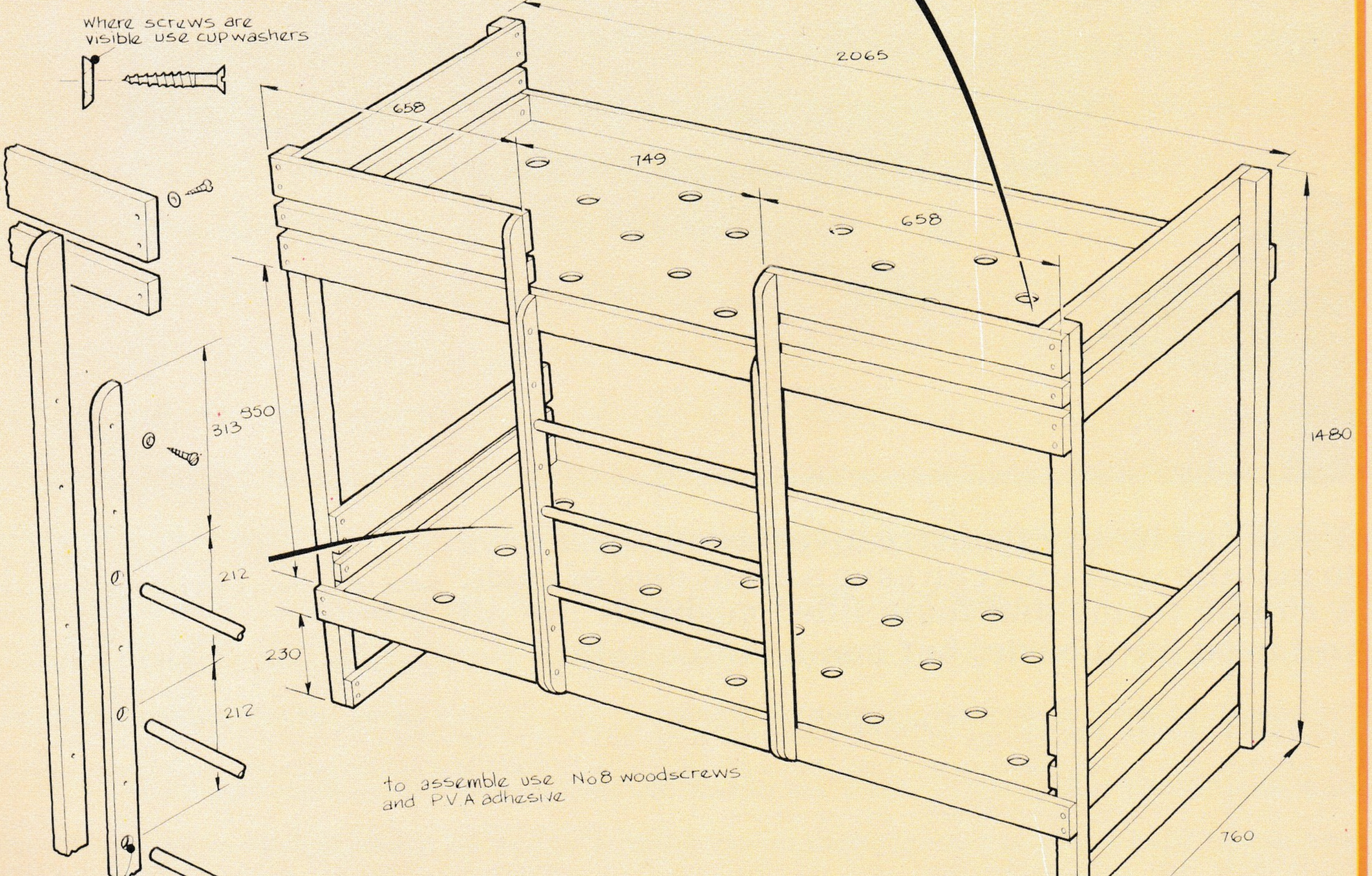
Ladder rungs: 3 No. 25mm chromed steel tube x 649mm

Use 32mm No. 8 countersunk wood screws and white PVA adhesive on the frame: on the bed rails, use the covered type (page 75). Use 25mm No. 6 screws on the bed bases



Start by cutting all timber to length except the bed bases. Build up the two end frames first then stand them upright and add the back frame. Saw and rasp the ladder stile ends to a radiused finish. Stand the assembly on its back before adding the final side frame, ladder and safety rails.

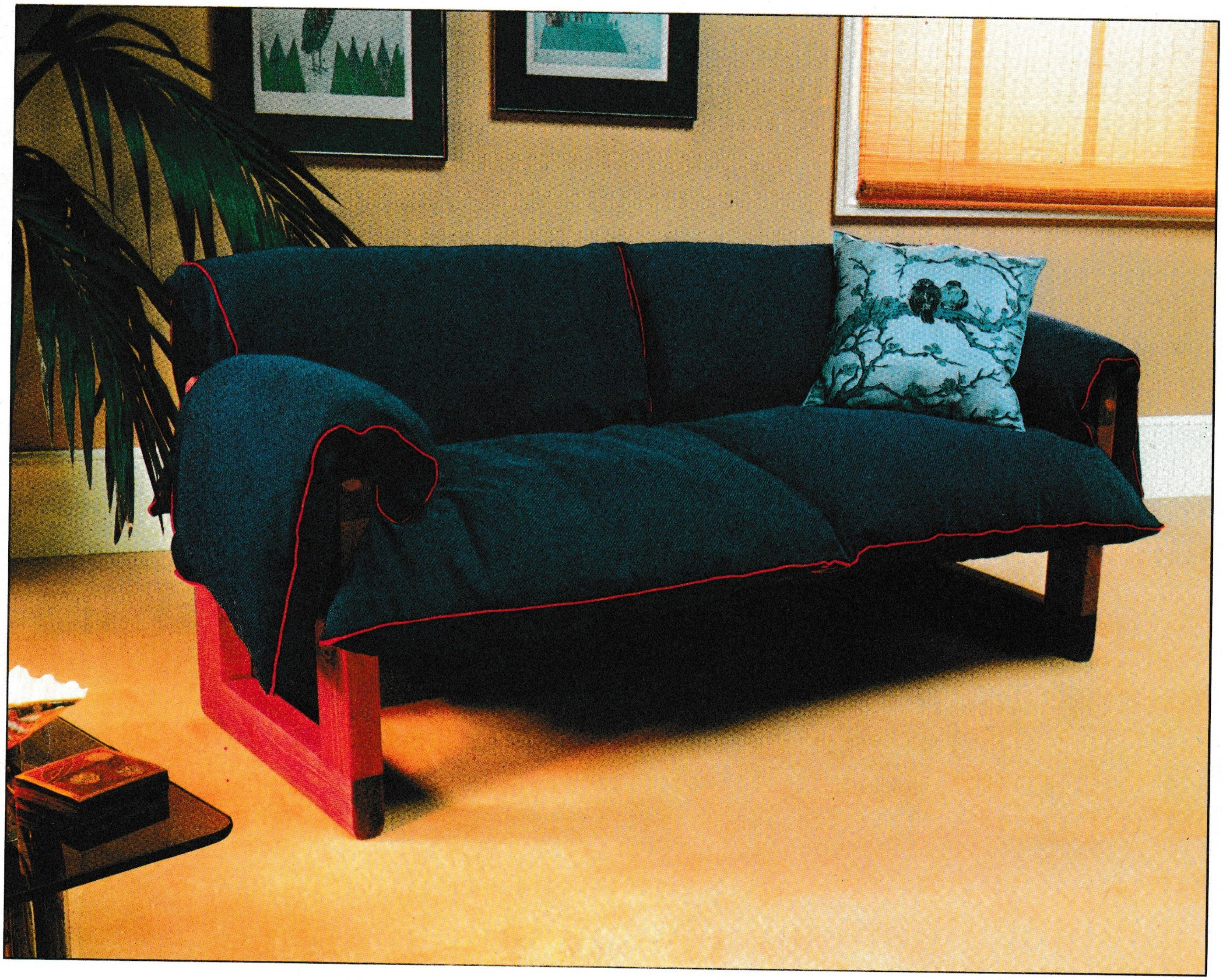




where screws are visible use cupwashers
2065
658
749
658
1480
850
313
212
212
230
760
to assemble use No8 woodscrews and PVA adhesive
drill 25mm dia holes

Advertising Arts

Simple sofa



Nigel MacIntyre

A sofa can be an expensive investment these days so making your own can save a great deal of cash. A simple frame and foam filled cushions are all you need for a basic, but comfortable sofa

The basis of the sofa is a set of two square soft wood frames which support the backrest and bottom panel over which the upholstery hangs.

The upholstery is in two distinct parts each of which covers half the length of the sofa and provides one side rest. The foam filled panels which make up each of these separate halves are joined together at their seams with piping and the whole arrangement is simply thrown over the frame and ruffled into position.

A foam filled panel attached to the top of the back cushion hangs over the back and prevents the cushions from sliding around.

Since the upholstery is so easy to sew together you can completely change the appearance of your sofa simply by making several sets of cushions from differing materials and changing things around as the fancy takes you.

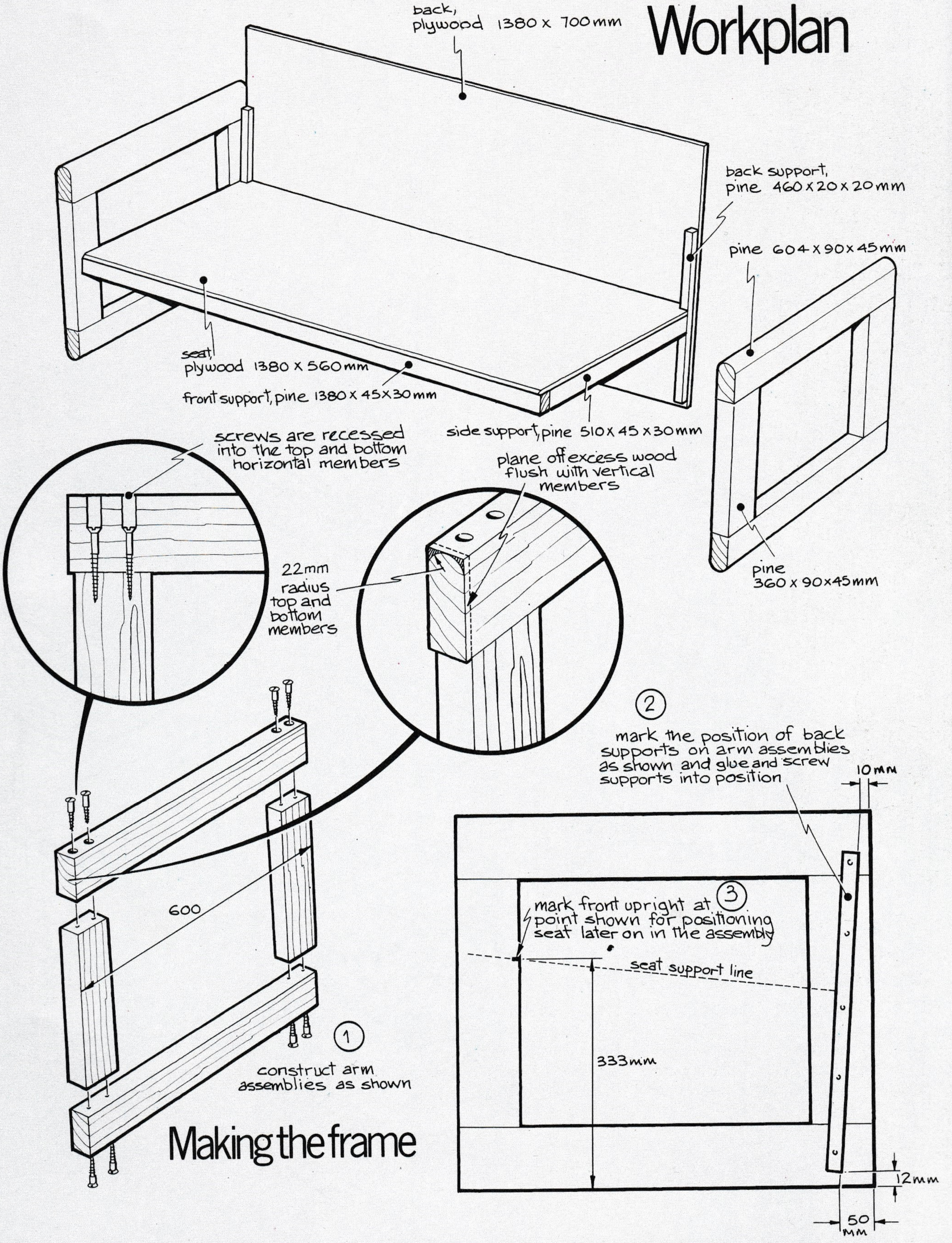
You can paint or stain the wooden frame to suit the rest of the upholstery and the decor of your living room, but a natural wood finish will blend with just about any type of cushion covering from hessian to felt or corduroy.

The open plan wooden support frame allows easy access underneath the sofa for cleaning and the whole thing is so light it can easily be moved around by any member of the family.

You can make matching chairs simply by reducing the overall length of the sofa, so you can build up a three or even four or five piece suite as you go along.

Maintenance and cleaning could not be simpler as all the upholstery is instantly removable.

Workplan


back,
plywood 1380 x 700mm
back support,
pine 460 x 20 x 20mm
pine 604 x 90 x 45mm
seat,
plywood 1380 x 560mm
front support, pine 1380 x 45 x 30mm
side support, pine 510 x 45 x 30mm
pine
360 x 90 x 45mm
screws are recessed into the top and bottom horizontal members
plane off excess wood flush with vertical members
22mm radius top and bottom members
600
10mm
seat support line
333mm
12mm
50 mm

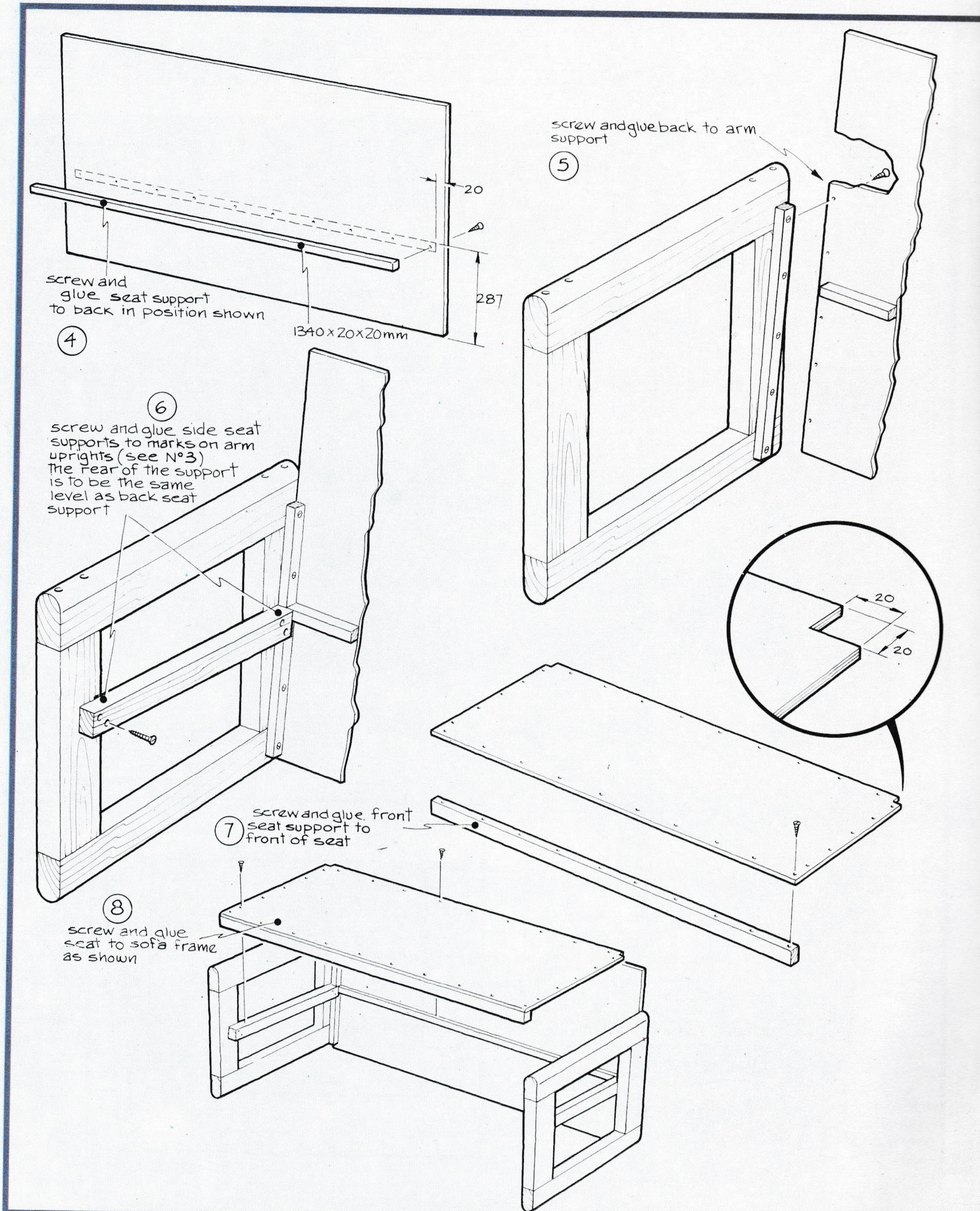
Making the frame

① construct arm assemblies as shown

② mark the position of back supports on arm assemblies as shown and glue and screw supports into position

③ mark front upright at point shown for positioning seat later on in the assembly

Advertising Arts



④ screw and glue seat support to back in position shown

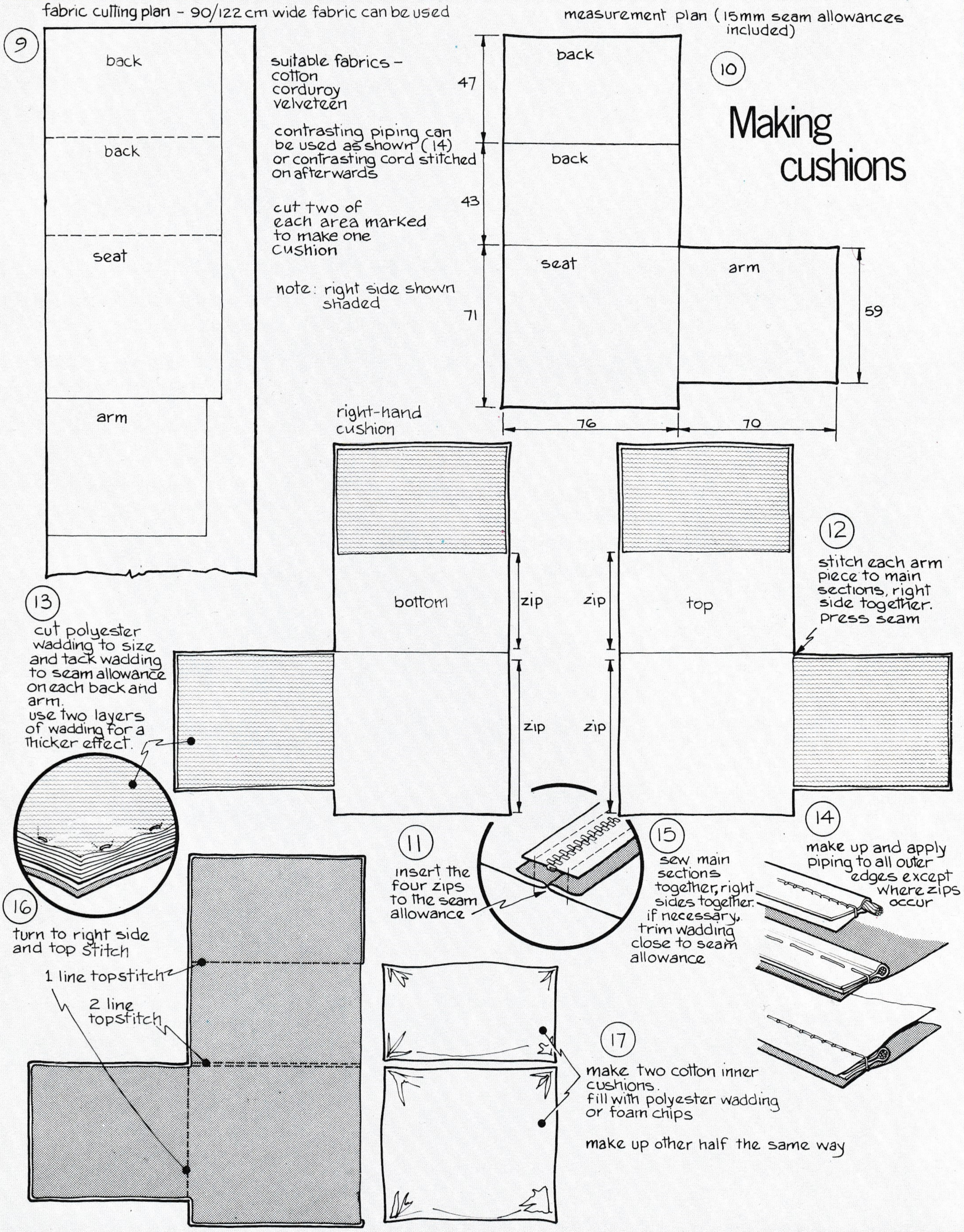
⑤ screw and glue back to arm support

⑥ screw and glue side seat supports to marks on arm uprights (see Nº3) the rear of the support is to be the same level as back seat support

⑦ screw and glue front seat support to front of seat

⑧ screw and glue seat to sofa frame as shown

Making cushions



fabric cutting plan - 90/122 cm wide fabric can be used

9

suitable fabrics -
cotton
corduroy
velveteen

contrasting piping can be used as shown (14) or contrasting cord stitched on afterwards

cut two of each area marked to make one cushion

note: right side shown shaded

measurement plan (15mm seam allowances included)

10

right-hand cushion

11

insert the four zips to the seam allowance

12

stitch each arm piece to main sections, right side together. press seam

13

cut polyester wadding to size and tack wadding to seam allowance on each back and arm.
use two layers of wadding for a thicker effect.

14

make up and apply piping to all outer edges except where zips occur

15

sew main sections together, right sides together. if necessary, trim wadding close to seam allowance

16

turn to right side and top stitch

1 line topstitch

2 line topstitch

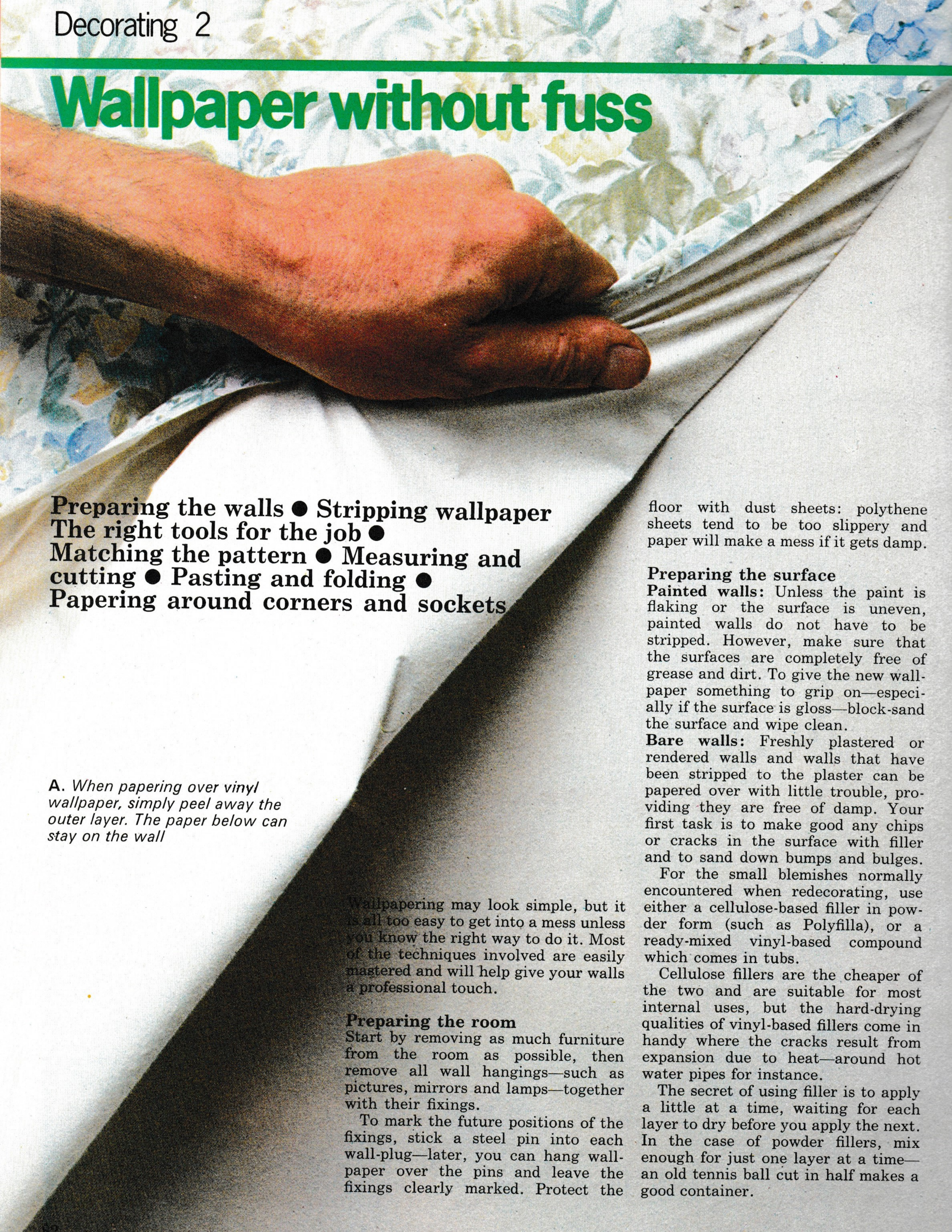
17

make two cotton inner cushions.
fill with polyester wadding or foam chips

make up other half the same way

Advertising Arts

Wallpaper without fuss



Preparing the walls ● Stripping wallpaper The right tools for the job ● Matching the pattern ● Measuring and cutting ● Pasting and folding ● Papering around corners and sockets

A. *When papering over vinyl wallpaper, simply peel away the outer layer. The paper below can stay on the wall*

Wallpapering may look simple, but it is all too easy to get into a mess unless you know the right way to do it. Most of the techniques involved are easily mastered and will help give your walls a professional touch.

Preparing the room

Start by removing as much furniture from the room as possible, then remove all wall hangings—such as pictures, mirrors and lamps—together with their fixings.

To mark the future positions of the fixings, stick a steel pin into each wall-plug—later, you can hang wallpaper over the pins and leave the fixings clearly marked. Protect the floor with dust sheets: polythene sheets tend to be too slippery and paper will make a mess if it gets damp.

Preparing the surface

Painted walls: Unless the paint is flaking or the surface is uneven, painted walls do not have to be stripped. However, make sure that the surfaces are completely free of grease and dirt. To give the new wallpaper something to grip on—especially if the surface is gloss—block-sand the surface and wipe clean.

Bare walls: Freshly plastered or rendered walls and walls that have been stripped to the plaster can be papered over with little trouble, providing they are free of damp. Your first task is to make good any chips or cracks in the surface with filler and to sand down bumps and bulges.

For the small blemishes normally encountered when redecorating, use either a cellulose-based filler in powder form (such as Polyfilla), or a ready-mixed vinyl-based compound which comes in tubs.

Cellulose fillers are the cheaper of the two and are suitable for most internal uses, but the hard-drying qualities of vinyl-based fillers come in handy where the cracks result from expansion due to heat—around hot water pipes for instance.

The secret of using filler is to apply a little at a time, waiting for each layer to dry before you apply the next. In the case of powder fillers, mix enough for just one layer at a time—an old tennis ball cut in half makes a good container.

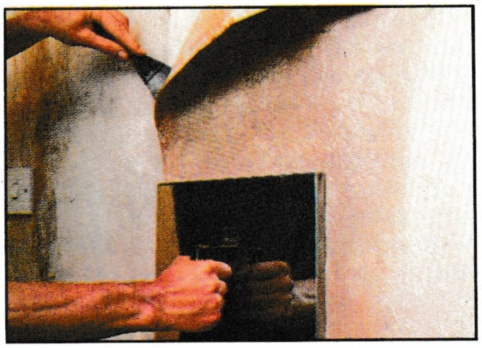
Before you apply any of the filler, brush away all loose debris from around the hole and blow away any dust. Use a flexible filling knife or an old kitchen palette knife to force the first layer well into the hole. While it is drying, clean the knife and scrape away any excess filler from the surface of the wall.

Continue building up the filler until it is just proud, then smooth it off with the knife. When the filler is dry, use fine glass paper on a cork sanding block to sand it—and any other bumps—flush with the wall.

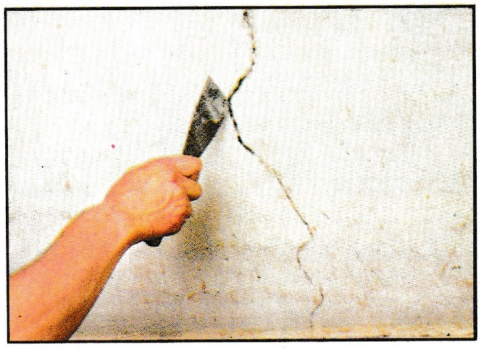
Sizing or painting the wall with a suitable compound, evens out the absorbent qualities of the plaster or render and creates a smooth surface on which to wallpaper. If you are using a cellulose wallpaper paste (see below), use this as your sizing compound. For starch pastes a bone glue size is available. Vinyl wallpaper pastes require their own, special size. Leave the wall to dry thoroughly before you start hanging your paper.

Walls already papered: In most cases, it is inadvisable to lay fresh paper over an already papered wall—over-papering causes the paste between layers to interact, giving rise to additional problems such as peeling, staining and blistering.

However, with vinyl-laminated paper, it is sometimes possible to peel away the vinyl layer from its paper backing strip. If the backing paper remains firmly and evenly pasted to the wall, you can paper directly on to it.



1 A steam stripping machine makes light work of stripping heavier papers. Easy to use, they can be obtained from most hire shops



2 Taking the trouble to fill cracks in the wall before you paper over it will improve the overall finish. Build up the filler in layers

3 Sizing a plastered wall before you paper over it will stop the paste from soaking in too quickly and causing the paper to peel later

Stripping wallpaper

There are two methods of stripping wallpaper in general use: soaking and scraping—with or without a proprietary stripping compound—and steam-stripping, using a special tool.

Soaking and scraping tends to be a messy job and if just water is used to soften the paper it can also be hard work. So where medium and heavyweight papers are concerned, you can add either proprietary stripping compound or some vinegar or acetic acid—available from chemists—to the water. All these reduce the surface tension of the water, helping it soak into the paper more quickly and break down the old paste.

Normally, the mix is simply painted on with a distemper brush. But if you are dealing with PVA-coated washable paper, you may need to score the surface with a wire brush so that the stripper can penetrate through to the wall. Leave the stripper to soak for a few minutes, then use a stripping knife to scrape it away from the wall. Make sure that your knife is kept ground sharp. Ideally, it should be of the type which has a stiff steel blade incorporated into the handle—the cheaper varieties bend and gouge plaster out of the wall.

If a piece of paper proves particularly stubborn, paint on some more water, leave it to soak, then try again—on no account attack a stubborn patch with the scraper as you may damage the plaster. Like washable paper, thick layers of old paper can be shifted more quickly if you carefully score the surface first with a wire brush.

Steam stripping is about as fast as using water but requires much less effort, creates less mess and minimizes the chances of damaging the wall. You can hire a steam stripper quite cheaply from hire shops and, if your old wallpaper is particularly heavy, it is worth the cost.

To use the tool, you simply press the steam-generating pad against the wall with one hand (fig 1) and scrape off the loosened paper with the other. These operations soon become continuous with practice, although the thick layers of paper may require more than one application.

Preparing to paper

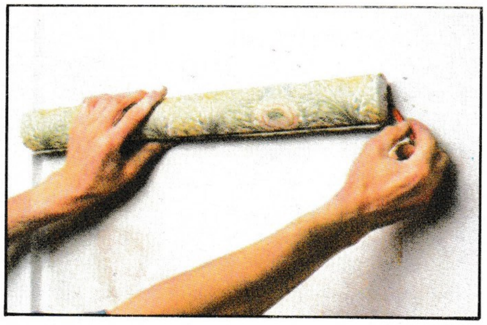
A good working surface on which to cut and paste the wallpaper is essential. Ideally, you should use a pasting board about 25mm narrower than the paper you are hanging. Alternatively, use a sheet of chipboard or a flush-faced door—laid over a pair of trestles or the kitchen table. To help you reach the top of the walls, you will also need at least one pair of steps. Make sure that these are safe.

Arrange the equipment so that you can work on it comfortably and safely, not forgetting that you will often need both hands free to hang the wallpaper. At the same time, gather together all the other tools necessary for the job—plumbline, shears, tape measure, pasting brush, pencil and bucket. The shears are particularly important—try not to economize by using ordinary household scissors which are too small for accurate cuts on this scale.

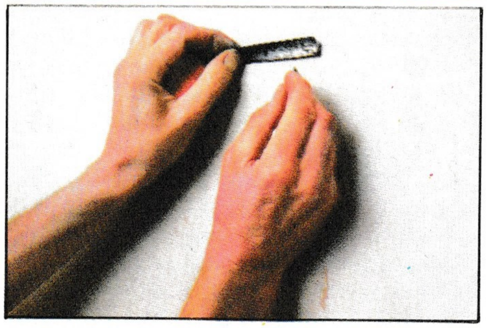
One final preparatory step is to compare the shades of each separate roll of wallpaper. Where the batch numbers on the outer packing are the same, there should be no problem. But if the numbers differ, check the colour of each roll and arrange them so that similar shades run next to each other when you come to paste them up on the wall.

Where to start

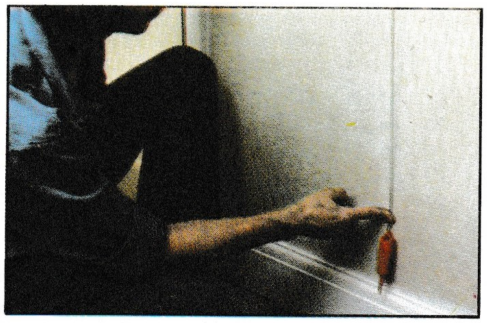
Where you start papering depends to a large extent on whether your wallpaper is subdued, or bold and striking. In the former case, follow the general rule that you should always paper



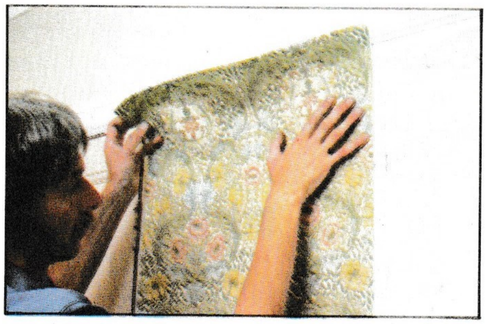
4 *To mark up the wall for the first strip, measure the width of your roll along the wall from your chosen starting point and make a mark*



5 *Next, to give some overlap at the starting point, measure back 25mm from the mark. Repeat this procedure at the base of the wall*



6 *You can now fix a plumbline in line with the two marks. Having chalked the line and secured it on the wall, snap it back*



7 *Align your first strip of wallpaper against the chalk mark. Do not forget to allow for an overlap top and bottom*

away from the light—any overlaps between strips will cast shadows if you make them facing into it.

Start at the end of a wall, or against a window or door frame—where you will have a straight run before tackling the more intricate bits.

Where the wallpaper you have chosen has a bold pattern, start with a feature wall or chimney breast which immediately catches the eye. Centre up the pattern so it is symmetrical then work on from either side.

If your wallpaper pattern consists of strong geometric shapes, plan for the final strip to be hung in an obscure corner of the room—well away from the light—where the break in pattern is not too noticeable.

Measuring and cutting

The simplest way of measuring and cutting wallpaper is to offer each strip up to the wall as you go along. But use a plumbline to make sure that the first strip is straight or you will run into difficulties later on.

Having chosen your starting point, which should be in a corner or against a door frame, measure from this along the top of the wall 25mm less than the width of your roll and mark the spot with a pencil.

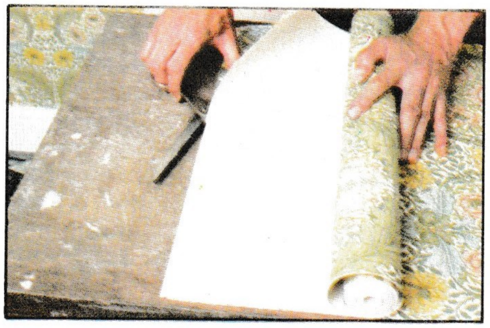
Secure a plumbline running from the top of the wall and through this point, rub it with chalk, then snap it against the wall as shown in fig 6. This leaves a vertical chalk line down the wall which in turn acts as a guide to help you position the side edge of the first strip.

Slide the paper upwards until about 25mm overlaps the top of the wall with the sides flush against the chalk line, then crease it along the junction with the ceiling. Still holding it in position, crease the bottom of the strip in the same way.

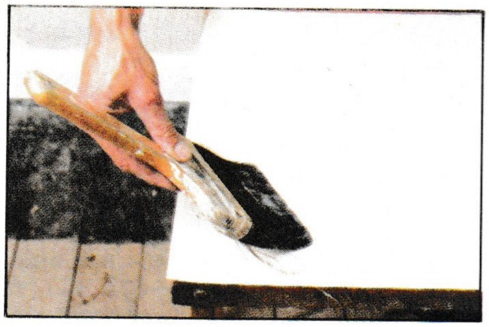
Although you will be trimming each strip, it is still a good idea to cut them square. So, having marked your first strip, lay the paper out on the table and cut across the strip 35mm from the bottom crease.

When measuring the next strip, use the edge of the first as a guide. Allow an overlap for trimming top and bottom, then mark and cut it as described above. If your wallpaper is patterned, make sure that you match the design from strip to strip—before you allow for your top overlap.

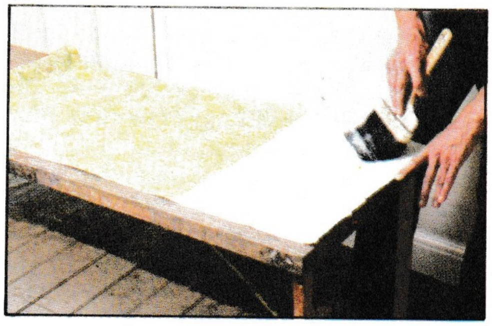
Wallpapers with patterns which match on each horizontal line can be matched in strips without difficulty. But if you find that you have to allow



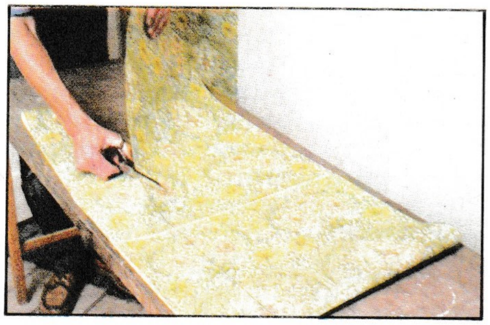
8 *When you are cutting strips of wallpaper, take the overlap on to match the pattern. Fold the paper back on itself to keep the cut square*



9 *When pasting a strip, paste the edges of the strip off the table. This will avoid accidentally getting paste on the other side of the paper*



10 *Folding strips 'paste to paste' as shown makes them far easier to handle. The end you paste last will go at the top of the wall*



11 *Cutting strips lengthways is easier if you paste and fold them first. Mark cutting lines in pencil and slice them with the shears*

an overlap of about half a strip's length before the pattern matches, you have what is known as a 'half drop and repeat' pattern.

In this case, save on wallpaper by working with two rolls at a time. Take your first strip from the first roll, your second strip from the second roll, and so on.

At the end of the first wall, you will almost certainly have to cut a strip lengthways to get it to fit. Do this when the strip has been pasted and folded. Measure the width of the gap top and bottom, transfer this to the whole strip then mark the strip off with a straight edge. Cut down this line with the shears (fig 11).

Pasting and folding

When pasting wallpaper it is important to stop the paste from getting on the table (fig 9). Note that edges are only pasted when they overhang the table. Brush on the paste in a criss-cross 'herringbone' fashion, ensuring not only an even coverage but also that the edges receive plenty of paste. Work from the middle of the strip outwards.

When you have pasted about two-thirds of the strip, take the top edge in your fingers and thumbs and fold the strip down on itself. Make sure that the edges line up then slide the rest of the strip on to the table and paste it. Fold this back on itself as well, so that you are left with two folds—a large one at the top of the strip and a small one at the bottom of the strip (fig 10).

If your strips of wallpaper are particularly large, you may find that you will have to increase the size of the bottom fold. Short strips need be folded only once.

Ready pasted paper must be soaked in water before hanging in order to activate the adhesive on the back. Having cut a strip to length and folded it to fit your water tray, immerse it for about a minute and move the tray to directly below the wall to be papered. You can then lift the strip straight out of the tray and on to the wall. Smooth and trim it as you would ordinary paper with the shears.

Hanging and trimming

Lift the folded strip off the pasting table, take the top edge in your fingers and thumbs and allow the top fold to drop. Lay the strip against the wall, in line with your chalk line at the side and with the crease making the trimming overlap at the top. Brush down the middle of the strip with the paperhanger's brush and unfurl the bottom fold.

12 *When you have positioned a strip correctly on the wall, crease the overlaps, peel away the paper around them and trim*

Next, lightly press down the edges to be trimmed. Mark off the waste by running along the creases with the back of your shears, then pull the edges away from the wall again.

Cut along each crease mark in turn, pressing the finished edges down as you go. Run over the finished job with the brush to remove air bubbles—working from the centre of the strip out towards the edges and using short, light, strokes.

Butt subsequent strips up against each other so the side edges touch, but do not overlap. Make sure that the pattern matches at the top of the wall before you start trimming, or you waste much paper.

Switches and sockets

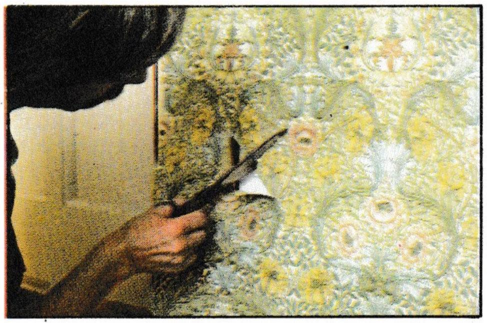
First offer up the pasted strip in the normal way, lining it up with your plumbed line or an adjacent strip. Brush the top part of the strip down against the wall to hold it in place, but leave the rest of the paper hanging freely over the obstruction.

Now press the strip lightly over the obstruction so that its outline is left indented on the paper. Pull the strip out from the wall again and pierce it with the shears, roughly in the middle of the indentations. Gently snip out to the four corners of the indented mark so you are left with four triangular flaps (fig 13).

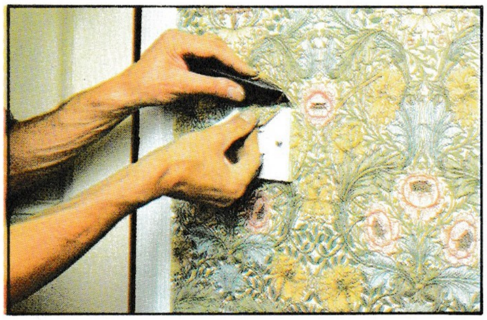
In the case of a round switch, pierce the centre of the circle and make several radial cuts out towards the edge. Trim the flaps away with a sharp knife, wiping off excess paste as you go (fig 14).

Papering around corners

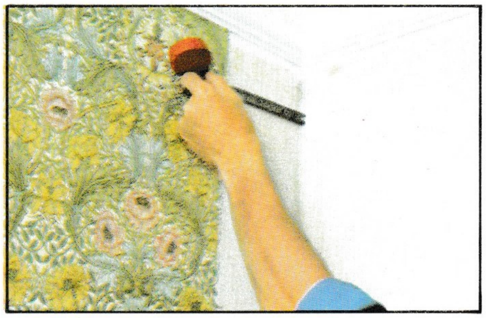
When you come to an internal corner, follow the rule of papering in with one piece and out again with another. As you paper in allow about 25mm



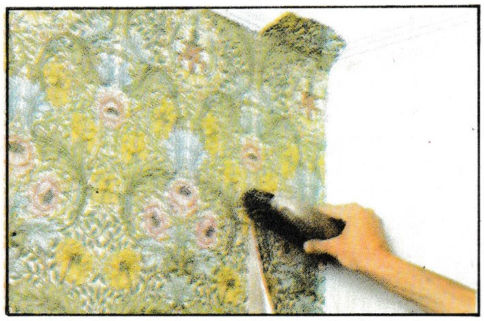
13 *Where the paper goes over a switch or socket, crease an impression of the outline then make vee-shaped cuts to the corners*



14 *Trim away the flaps with a sharp knife. On circular switches, use the same procedure but make more cuts to the edges*



15 *When you are measuring thin strips before corners, do not forget to take measurements at both the top and bottom of the wall*

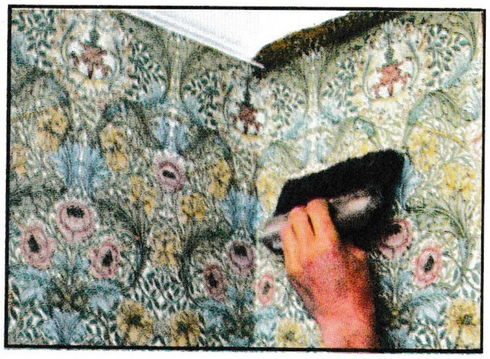


16 *Butt a strip before a corner up against the previous strip, then crease the overlap into the corner with the back of your shears* overlap and crease the paper into the corner with the back of the shears.

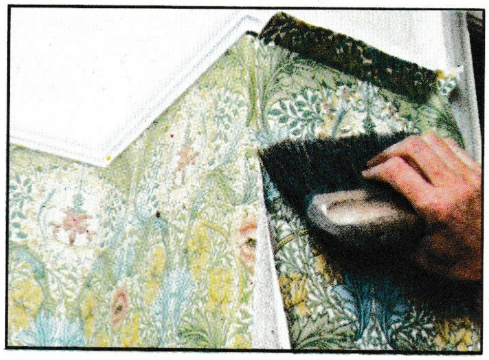
Whenever you paper out, plumb a fresh line on the adjoining wall first. As you hang the paper, align it with the plumbed line and make sure it goes well into the corner to cover the overlap on the previous strip.

Folding paper around an external corner will only be possible if the corner is vertical and cleanly finished. If you have any doubts, treat the corner as you would an internal one.

Paper up to it with your first piece, allow an overlap of 25mm and fold this around corner. Having plumbed a fresh line, hang your second strip, again allowing about 25mm over the corner for trimming. Make sure that the second strip is firmly stuck to the overlap of the first, then trim it flush with the edge of the corner.



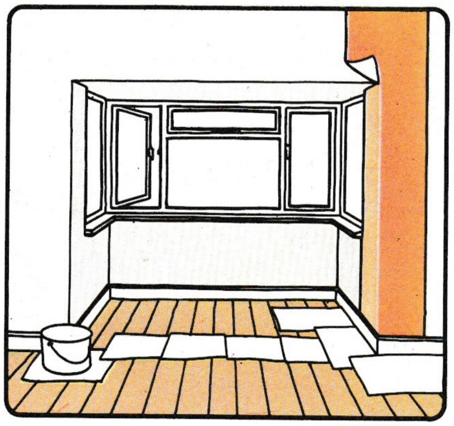
17 *Always plumb a fresh line before turning a corner. As you hang the next strip, run the overlap into the corner, crease and trim it*

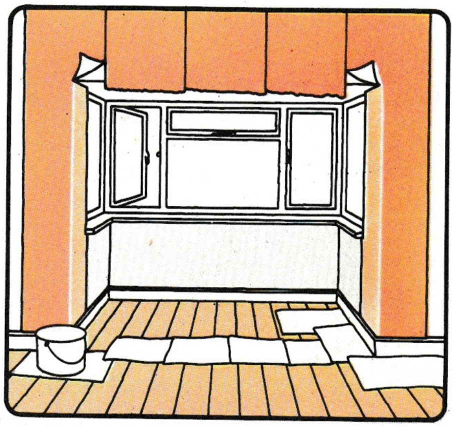


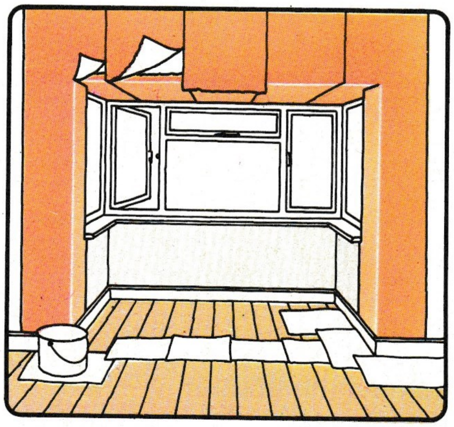
18 *On small sections of wall, there is no need to plumb a line. Align one side of the strip on the edge with the other overlapping*

Papering a window reveal

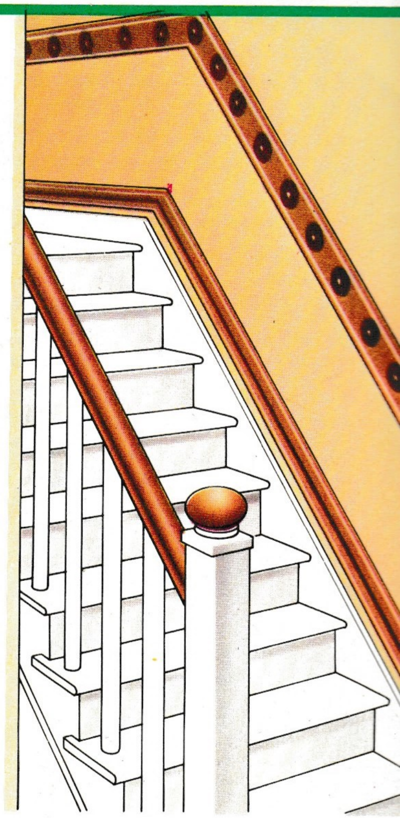
Top right: *When papering into a window reveal or bay window, cut your first strip so that you can fold part of it round as shown.*
Below: *Continue laying strips across the wall around the reveal. Leave the ends of the shorter strips hanging at this stage.*
Below right: *Paper the top of the reveal, leaving enough overlap to turn each strip up on to the wall. Finally, stick the hanging ends down and trim them to length. Paper the remaining parts in the normal way*







Venner Artists



Ideas for wallpaper borders

Used on their own, wallpaper borders add a touch of style and elegance to a plain painted room.

Available from most wallpaper and decorating shops, they are normally employed to finish off a semi-papered wall which has no picture rail. But the borders can often be used to better effect to highlight windows and alcoves, pick out fixed wall mirrors or extend architraves and covings.

The borders are pasted up in the same way as ordinary wallpaper. It is a good idea though, to pencil in the positions of the strips so that you can make alterations before they are stuck down.

To make the mitred (angled) joints between strips, cut them overlength so that they overlap one another. When you paste them up, put a piece of paper between the flaps then cut through the strips at the desired angle.

Advertising Arts

On a firm footing

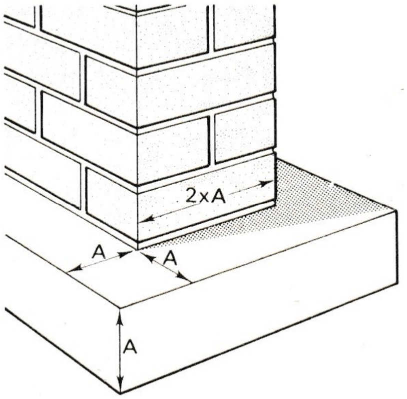
All about concrete ● Calculating quantities ● Working out the size of your foundations ● Mixing your own concrete ● Setting out and digging a trench ● Levelling off

Most modern constructions stand on foundations made from concrete. Such foundations are necessary for three reasons. They spread a structure's load over an area large enough to prevent undue settlement occurring. They bridge over any soft spots which may exist in the ground. And they provide a level base for the structure.

Simple foundations

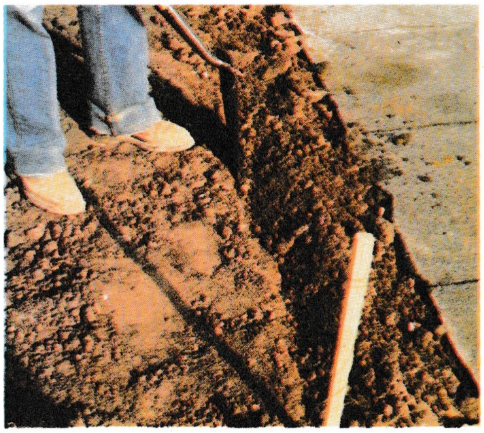
Although foundations vary enormously in complexity, those used for garden projects—walls, barbecues and planters—can be of the simple, strip type. Also known as footings, these are made by digging a trench and then pouring in a measured amount of concrete.

Concrete paths and the slabs on which greenhouses and garden sheds rest come under the classification of raft foundations. These are made with the aid of pieces of timber—formwork—laid out before the concrete is poured to give the finished slab a uniform shape. Raft foundations are covered in detail further on in the course.

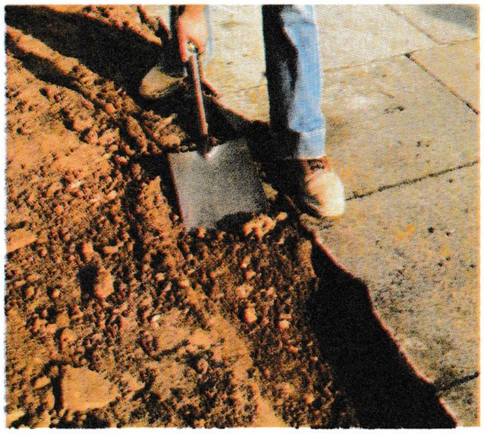


David Watson

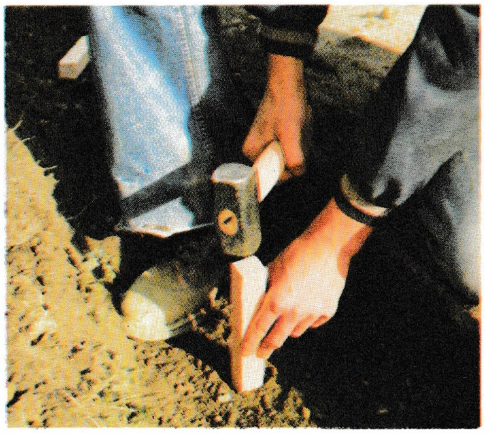
A. *Use this diagram to calculate the width and depth of your foundations*



1 *Your stakes and marker lines need only stay in for as long as it takes to dig out an impression of the length and width of the trench*



2 *As you dig the trench, make sure that the sides and floor are as straight and as level as possible. Remove dug soil immediately*



3 *The pegs indicating the depth of your foundations should be driven into the floor of the trench, about 1m apart, then levelled off*

Concrete

Concrete is a mixture of Portland cement, aggregate and water. Aggregate is made from sand, stones, or some other inactive material and is supplied in fine, coarse, or mixed varieties. Mixed aggregate is often called *all-in ballast*: since it is a mixture of sand and stones it is easily hand mixed and is suitable for all kinds of amateur projects.

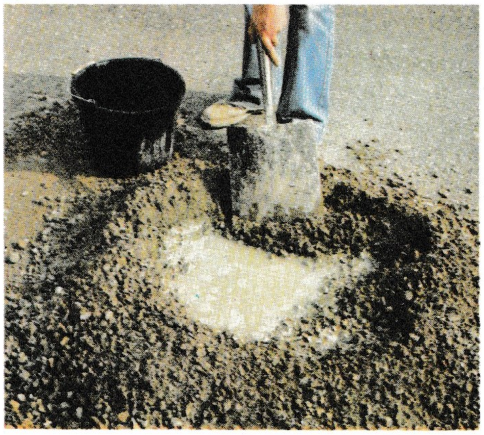
When first mixed, concrete consists of particles of stone and sand bound together by a paste of cement and water. As the paste dries it hardens—bonding the stones into a strong, durable structure.

This process takes place in less than a couple of hours so time is always an important factor when you are working with concrete.

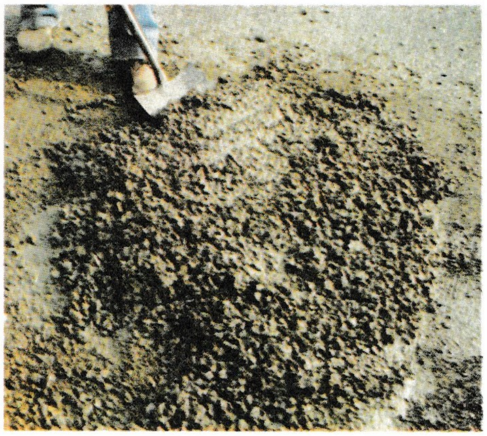
Which mix to use

The composition of a batch of concrete is expressed in the building trade as a ratio of cement to sand to shingle, in that order. So if a mix is described as 1:3:6, it means one volume of cement and three of sand to six volumes of shingle.

At the builders' merchants, however, the sand and gravel is normally sold mixed as all-in ballast. For simple foundations, ask for '18mm 1:6 ballast'. The 18mm means there are no particles in the mix bigger than 18mm across and 1:6 means that you need six volumes of ballast to one of cement for each batch.

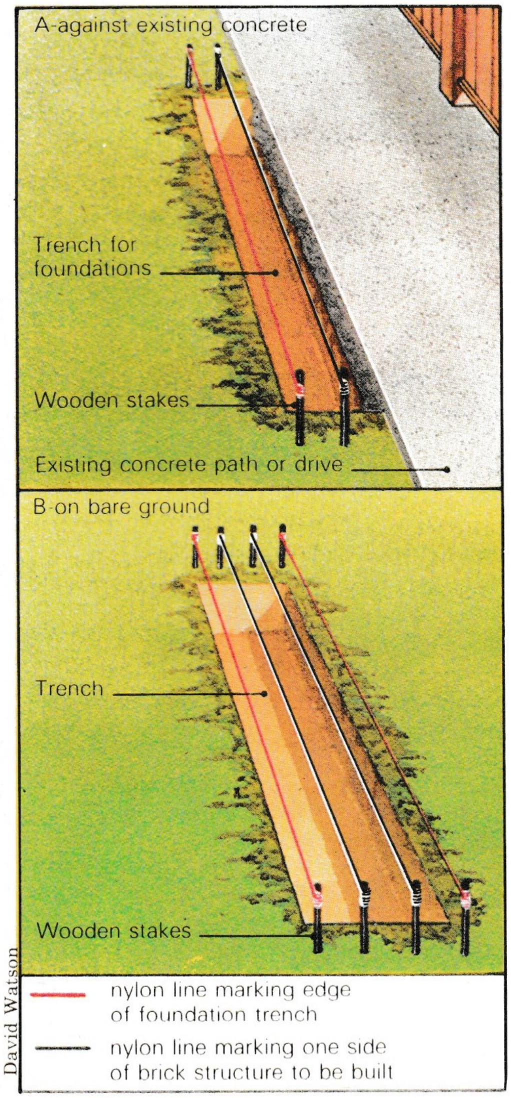


4 *Having mixed the dry ingredients form a crater in the middle of the heap then pour in your measured quantity of water*



5 *Turn over the mixture until it reaches the consistency shown here. Puddles in the mix mean you have added too much water*

B. Left: *Concrete is a versatile material, ideal for all sorts of small garden projects*


A-against existing concrete
Trench for foundations
Wooden stakes
Existing concrete path or drive
B-on bare ground
Trench
Wooden stakes
nylon line marking edge of foundation trench
nylon line marking one side of brick structure to be built
David Watson

C. Below left: *The correct way to set out simple footings, leaving out the structure lines*

The strength of a batch of concrete also depends on its water content at the time of mixing and laying so it is important to make sure that the correct amount of water is used. For a 1:6 cement to ballast mix, use about two volumes of water.

Calculating quantities

For simple footings, there is no need to involve yourself in the complex calculations used in housebuilding. Use the diagram in fig. A to calculate the length, width and depth of the footing then multiply the figures together to find the volume of concrete required. Add on a little extra to the result—it is better to have too much concrete than to have to buy more half way through the job.

The method shown in fig. A will be enough to satisfy the Building Regulations on small projects only. Do not attempt to use it for structural work—such as house extensions—where strict guidelines on the size of foundation and mix of concrete you can use come into force.

If you are planning to build on particularly soft soil, you may need to reinforce your foundation trench with a little hardcore before you pour in the concrete. Your local building inspector can advise on this.

Readymix or do-it-yourself?

The ingredients for concrete can either be bought unmixed from a builders' merchant or delivered by truck, readymixed. The latter saves a great deal of hard work but will probably be too expensive for small projects using less than 2.5m^3 of concrete. You may also have difficulty persuading the concrete company to deliver such a small load.

If you decide on ready-mixed concrete, bear in mind that it must be laid and levelled within two hours of delivery and that the truck will need access to the site.

One of the advantages of mixing your own concrete is that you can do the job in stages, mixing just enough for your needs. If the concreting is extensive, consider hiring a small mixer. Make sure, though, that you have it fully demonstrated before leaving the hire shop.

Mixing your own concrete

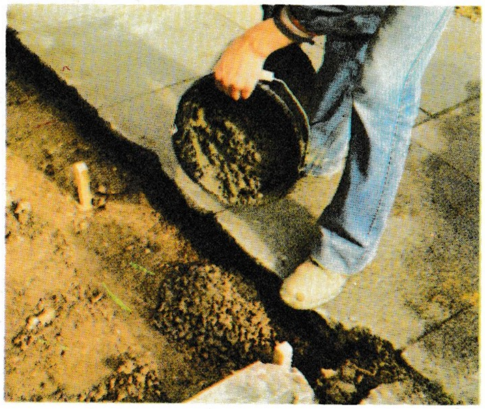
To hand mix concrete, measure out bucketfuls of sand and gravel—or all-in ballast—and arrange them in a large heap on-site. Each bucketful should correspond to one 'volume' of your mix. Hollow out a crater in the top of the heap and add a measured volume of cement.

Turn over the mixture three or four times until it is uniformly coloured—with no cement streaks—then re-form it into a volcano shape.

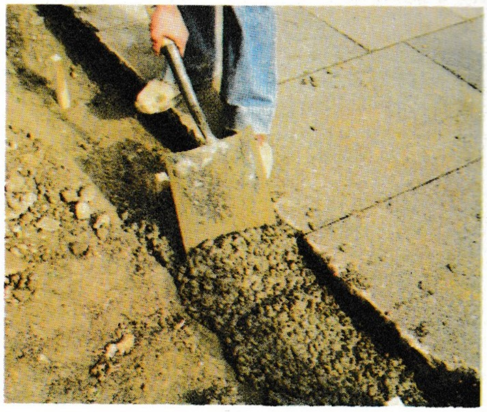
Now pour in some of your measured volumes of water—not from the same bucket as the cement—and shovel up the dry ingredients from the bottom of the heap (fig 4). Turn the mixture over again, adding more water as you go, until a firm, even paste is formed.

To check if a batch has been correctly mixed, press hard on it with the back of the trowel or the heel of your boot. The impression you make

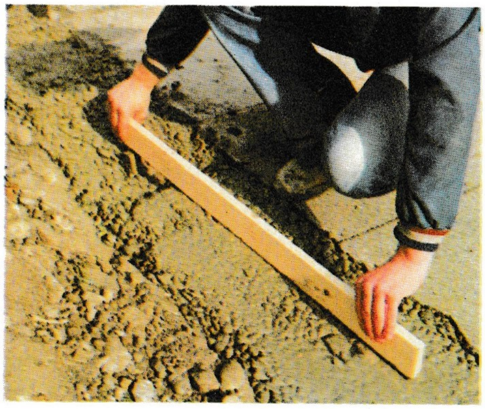
6 *Use a bucket to transport the mix to where it is needed. Carrying it on a shovel takes too long and may make a mess of the site*



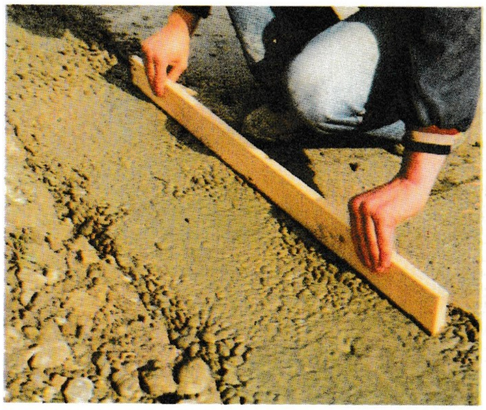
7 *Before you pour the mix into the trench, remember to drive marker pegs in to indicate the foundations' depth. The peg tops should be level*



8 *Shovel each bucketful of concrete as shown to ensure that it fills out the trench completely and comes up to the level of the pegs*



9 *Checking with straight edge between peg tops shows up any unevenness. This can be put right by adding or removing concrete*



10 *When the concrete is as level as you can get it, lightly run over the surface with a piece of wood in a 'chopping' motion*

should have a firm, closed surface free of water patches, pits and lumps.

Setting out

For setting out simple footings, you need a couple of sets of bricklayers' line and a supply of wooden pegs half as long again as the depth of the concrete. You can use nylon fishing line instead of bricklayers' line—but not string, which will stretch and sag. Make the pegs from wood offcuts.

The lines are used to indicate the widths of both the foundation trench and the structure above. If you are building flush against a concrete drive or path, only two lines are needed: one to indicate the other boundary of the foundations and one to mark the main wall of your structure.

Having decided on your site, measure it out and score the boundaries with a spade. At either end, drive in stakes to mark the widths of the foundation trench and the structure to be built on it (fig C).

Connect the stakes with your line, tied taught so that you have an arrangement similar to that shown in fig C. Keep the lines as far up the stakes as possible so that you have room to dig underneath them.

Where the ground is soft enough, you may find it easier to score out the sides of the trench then remove the stakes and lines before you start digging. To do this, hold a spirit level on end, plumb against each line and mark off the ground at regular intervals. Join up the marks with the edge or your spade.

Otherwise, use the lines as a digging guide. Try not to disturb the ground any more than is necessary—simply dig down to the required depth of the foundations, keeping the floor of the trench as flat as possible.

With the trench dug, the next step is to drive your wooden pegs into the floor. These will stay in place when the concrete is poured, indicating the final level of the foundations.

Start at one end of the trench, driving your first peg in until it protrudes to the required depth of concrete (fig 1). Drive in subsequent pegs at intervals of about 1m. Using a spirit level, check each peg with the preceding one to ensure that they are all exactly horizontal.

Pouring the concrete

Concreting should begin at the furthest point from where the concrete is being mixed. Avoid forceably throwing the concrete in to the trench as this causes the larger particles of ballast to separate from the mix.

Fill the trench up to the level of your marker pegs. If the foundations are to be particularly deep, pour in concrete to a depth of about 200mm then flatten it out with a piece of timber before you add more.

When you reach the stage where the concrete looks more or less level with all the pegs, begin levelling off. Use the edge of a piece of timber to flatten the surface (fig 10). Do this in a 'chopping' motion, moving the timber along about 50mm each time.

Finally, test the overall level of the concrete by resting a straight edge or spirit level on each marker peg in turn. Remove any excess concrete and relevel where necessary.

Drying

At this point, the footings are complete and ready to be left to dry. Although they should be ready to build on the following day, the more drying time you can allow the better.

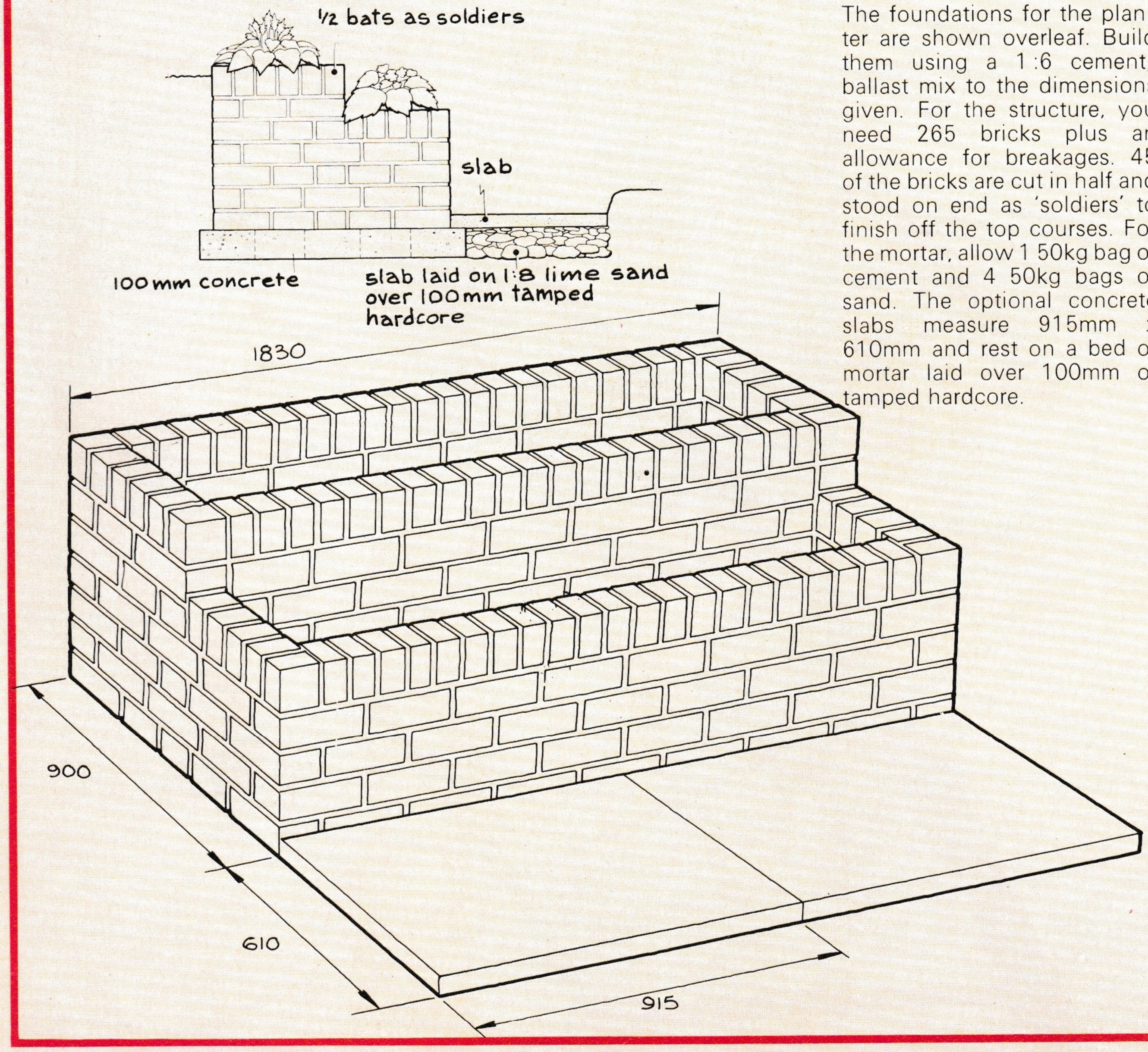
In hot weather, moisten the surface of the setting concrete regularly with a watering can. This will stop it setting prematurely and cracking. If conditions of extreme cold are expected, place some hay or old packaging material over the concrete to insulate it, then cover it with plastic sheet.

An attractive stepped planter

This stepped planter project adds an attractive focal point to any garden. The design is based upon the simplest of all bonds—the stretcher bond—but uses half-bricks all the way along the top course.

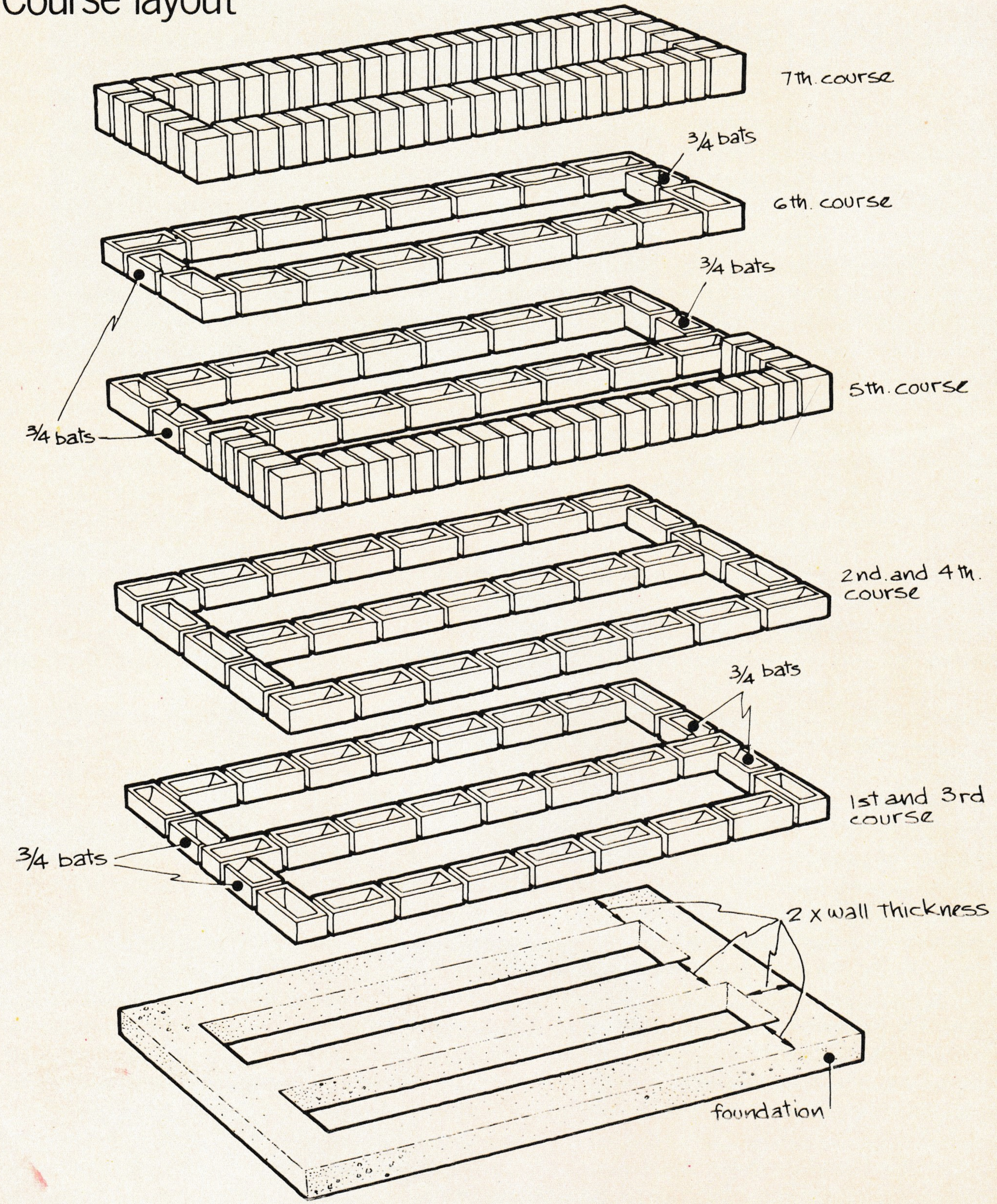
The ground in front of the planter can be covered with two concrete slabs, laid on a base of tamped (compressed) hardcore topped with mortar. Alternatively, you can leave it as bare soil or grass.

The foundations for the planter are shown overleaf. Build them using a 1:6 cement/ballast mix to the dimensions given. For the structure, you need 265 bricks plus an allowance for breakages. 45 of the bricks are cut in half and stood on end as 'soldiers' to finish off the top courses. For the mortar, allow 1 50kg bag of cement and 4 50kg bags of sand. The optional concrete slabs measure 915mm x 610mm and rest on a bed of mortar laid over 100mm of tamped hardcore.



Advertising Arts

Course layout



Advertising Arts

TILE STYLE

Brightly coloured transfers or painted designs can transform the dull, white-tiled splashbacks behind baths and basins. Craft tranfers are obtainable from most department stores and large stationers. They can be used either singly, at regular intervals, or combined according to your own design.

Use enamel paint, masked off with masking tape, for the painted designs. The same rules apply as for transfers but you will find angular designs simpler to mask off.